

Special report



Wealth  
Management

# GLOBAL Insight 2022 Outlook

The long-term  
investment landscape:  
Where to from here



For important and required non-U.S. analyst disclosures, see page 35.  
Produced: Dec 1, 2021 8:37 am ET; Disseminated: Dec 1, 2021 3:28 pm ET

Investment and insurance products offered through RBC Wealth Management are not insured by the FDIC or any other federal government agency, are not deposits or other obligations of, or guaranteed by, a bank or any bank affiliate, and are subject to investment risks, including possible loss of the principal amount invested.

## A look ahead

The two-year-old COVID-19 pandemic has left its mark on households, the corporate sector, and the economy, all of which have had to adapt to new and challenging circumstances.

As 2022 looms, the initial “catch-up” phase of the global economic recovery after the shock of the pandemic is giving way to an expansion phase. In our view, the era of outsized, globally synchronised fiscal stimulus and unprecedented monetary stimulus is beginning to recede. From now until well into 2023, we see the trajectory of the world’s major economies being shaped by the normal progression of the business cycle.

In this report, we focus on the outlook for equities and fixed income. We expect the current phase to be good for equities for as long as a U.S. and global economic recession can be avoided. Beyond this, we surmise that a period of intense corporate competition and even greater corporate concentration will emerge, and that stock selection will be key to portfolio performance.

Fixed income investors are facing a landscape transformed by the crisis, marked by a notable increase in corporate debt loads. We suggest how investors should view the opportunities and risks for this business cycle.

Beyond the economy and the corporate sector, we believe two issues will define the rest of the decade. The first is the global green energy transition. Though it will undoubtedly bring many opportunities, we uncover significant gaps between ambitions and potential outcomes, and believe investors should maintain a pragmatic approach.

The second defining issue is China, one of the locomotives of the global economy. Shifting demographics and declining productivity could halve its economic growth rate in the coming decade. How successful President Xi Jinping’s policy initiatives are will determine how China contends with these headwinds.

We hope you enjoy this special outlook edition of Global Insight.

*Global Portfolio Advisory Committee Co-chairs*

**Jim Allworth**  
Vancouver, Canada

**Kelly Bogdanova**  
San Francisco, United States

**Frédérique Carrier**  
London, United Kingdom

## Table of contents

### **4 Equity investing for the next 10 years**

The next couple of years should see the economy follow a path dictated by all the policies put in place in response to COVID-19. In our view, the economy will grow, earnings and share prices should climb. Beyond COVID, growth will become a much scarcer commodity. Stock selection will be the key ingredient to portfolio performance.

### **11 A different kind of debt mountain**

As the two-year-long saga of a global pandemic hopefully nears an end, we survey the corporate bond landscape in the aftermath of seismic shifts in these markets following unprecedented central bank intervention, and a notable increase in corporate debt loads in response to the crisis.

### **16 Green energy transformation: Opportunities and realities**

The energy transformation could usher in an economic transformation. This shift is a path of opportunity, but investors should maintain a pragmatic approach given the serious gaps between ambitions and potential outcomes.

### **21 Xi-ism faces the challenges of China's economic evolution**

The world's second-largest economy is facing threats to growth, in the form of shifting demographics and declining productivity; the policy response may entail profound political and economic changes. We look at how China is attempting to adapt in order to meet these challenges, and the implications for investors in the coming decade.

### **28 RBC's investment stance**

Our thoughts about portfolio positioning for 2022 by asset class and region, and our forecasts for currencies and commodities.



## Equity investing for the next 10 years

Until well into 2023 we think the trajectory of the world's major economies will be shaped by the normal progression of the business cycle and the remaining effects of the policies put in place to contend with the pandemic. This phase should be good for equities for as long as U.S. and global recessions can be avoided.

Beyond 2023, those emergency policy-driven effects should quickly wane, leaving “first principles” to drive the economic bus. Those are the growth of the labour force and increases in productivity. These point to an extended period of slow GDP growth—perhaps slower than in the decade following the financial crisis. That, in turn, points to a period of intense corporate competition and even greater corporate concentration.

Equities can be rewarding in such an environment. But owning the right ones and avoiding the challenged will be even more essential ingredients of success.

### Part I: Coming out of COVID-19

The recession accompanying the COVID-19 pandemic was the shortest on record, lasting less than three months. By the end of Q3 2021, the U.S. economy had regained all of the ground lost in the spring 2020 plunge.

For Canada and the eurozone, that same transition will probably occur either in the current quarter or in Q1 2022, and not long after for the UK and Japan. China, the first to shut down and to reopen, had regained all the ground lost by way back in last year's third quarter. However, its growth rate has slowed dramatically in recent quarters due to renewed pandemic shutdowns, power shortages, shipping congestion and delays, as well as policy tightening.



**Jim Allworth**  
Vancouver, Canada  
jim.allworth@rbc.com

## No U.S. recession in sight

Our principal focus is always on the U.S. economy—the world’s largest and the one that sets the rhythm and tone for much of the developed world. A U.S. recession has usually been bad news for other economies and for equity markets. Every bear market for U.S. stocks—and for most other equity markets—has been associated with a U.S. recession.

All six leading indicators of a U.S. recession that we follow are pointing in a direction consistent with this expansion having quite a bit further to run. Powerful tailwinds are driving the U.S. economy and most developed economies forward:

**Credit conditions are very “easy.”** U.S. recessions, with few exceptions, have been triggered by the arrival of overly tight credit conditions featuring: (1) prohibitively high interest rates, high enough to discourage businesses and individuals from borrowing, and (2) an unwillingness by banks to lend.

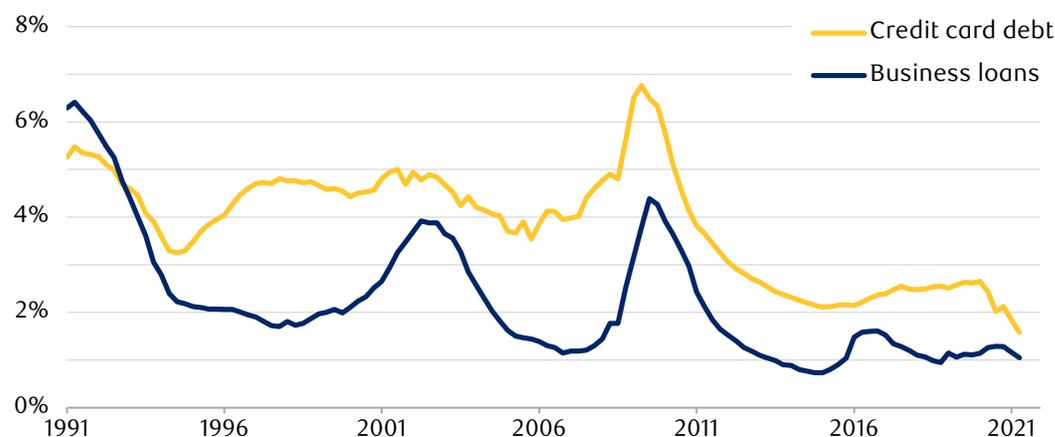
The opposite describes today’s credit conditions. Rates are so low they encourage borrowing, while banks everywhere are looking for credit-worthy individuals, businesses, and projects to which to lend.

The latest Senior Loan Officer Survey taken by the Fed reveals a majority of U.S. banks continue to reduce lending standards. And why not? Delinquency rates on all types of business and consumer loans, including credit cards, are near or at all-time lows. Default rates on high-yield bonds—the lowest-quality corporate debt—are running at half their normal levels and near all-time lows.

If credit conditions were the only factor we could consider, it would lead us to conclude this expansion had at least a year or two to run.

## Loan delinquencies are at or near historical lows

Percentage of loans delinquent at U.S. commercial banks



Source - U.S. Federal Reserve; quarterly data through 4/1/21, seasonally adjusted

**Excess savings and pent-up demand should keep the consumer spending.** U.S. and Canadian households are sitting on excess savings built up over the pandemic of something greater than 10 percent of GDP. In the UK and eurozone it’s less than half as much, but still significant. Sitting alongside savings is pent-up demand for many things including: new cars (chip shortages), holiday and business travel, entertainment/sports events, and dining out. Central bankers expect only about 20 percent of this savings pile will get spent in the coming year or two, enough we think to keep the consumer spending engine powering through 2023.

**Inventories are too low, need to be rebuilt.** Stocks of goods on hand are unusually depleted and need to be replenished for businesses to meet current demand. Shipping/supply chain disruptions are making this restocking difficult to accomplish. Some of the urgency may diminish following Christmas and the Lunar New Year.

But there may be a permanent shift upward in goods kept on hand as many companies have decided their just-in-time inventory model, often reliant on a far-flung supply chain, has left them too vulnerable and resulted in permanently lost business. Restocking should provide an underpinning to industrial production and GDP growth for at least the next year.

### Relative to sales, inventories are as depleted as they have ever been

U.S. total business inventories-to-sales ratio



Source - U.S. Federal Reserve; monthly data through 9/1/21, seasonally adjusted

**Capital spending is surging—with more to come.** Capex by business in Q3 was up by about nine percent year over year in both the U.S. and Canada. The drivers of this vigorous growth include low interest rates, strong corporate profits, as well as the need for more capacity and a more resilient supply chain. Quarterly management commentary by many companies reveals capital spending intentions for the coming year are unusually elevated.

The much-anticipated U.S. infrastructure bill, at just \$500 billion of new spending over 10 years (vs. the \$2 trillion talked about initially), will add a useful but underwhelming estimated 0.01 percent to 0.02 percent to GDP in each of the next two years.

### Could the Fed and other central banks spoil the party?

Yes—eventually. But before that happens, monetary conditions have to transition from “easy,” what we have now, all the way to “tight,” which is some considerable distance down the road. Typically, “tight money” is around for six to 12 months before the U.S. economy tips into recession.

A good gauge of how restrictive credit conditions are now is demonstrated by looking at the difference between the federal funds rate and how fast the economy is growing. It has always been the case that the fed funds rate has climbed above the nominal growth rate of GDP (i.e., the growth rate before the effect of price increases has been taken out) some months before or just after a recession got underway.

The fed funds rate currently sits just above zero, and nominal GDP is running nine percent higher than it was a year ago. We believe that pace should slow to between six percent and seven percent next year, and to between four percent and five percent in 2023. While the Fed has indicated it could begin raising rates next year and continue through 2024, policymakers still project a policy rate of just 2.5 percent over the long run—well short of projected nominal economic growth rates over the next three years.

But recent higher-than-expected inflation readings have left many market watchers worrying out loud that the Fed may be forced to raise rates faster and further. That is not our forecast, but for the sake of argument, if the Federal Open Market Committee were to start with a first rate increase in the middle of 2022 and hike rates by a quarter of a percentage point at each meeting thereafter, then by the end of 2023 the fed funds rate would stand at three percent, still short of the four percent to five percent projected growth rate of the economy.

It's worth remembering that the Fed doesn't tighten with the intention of pushing the economy into recession. It is always trying to engineer a "soft landing" wherein the economy slows enough to reduce inflationary pressures but avoids an outright downturn. Of the 17 Fed tightening cycles since 1953, only eight ended in recession, while nine produced no recession.

We expect inflation to ebb in H2 2022 and recede further in 2023 under the influence of:

- Resolution of the factors that have artificially produced shortages;
- The return of more people to the labour force as benefit programmes end and personal safety issues fade; and
- The capital spending boom, already underway, yielding productivity gains that somewhat offset higher employment costs.

If this proves to be the case, then the Fed and other central banks may be able to end any series of rate hikes before credit conditions pass the point of no return for the economy.

Either way, the economic tailwinds enumerated earlier provide good reasons to expect above-trend GDP and corporate profit growth through 2022 and probably 2023 as well. It would be unusual for share prices not to maintain an upward trend for at least another 12–18 months in that case.

### **In the right groove**

History is reassuring on that front. As we highlighted earlier this year, a statistical look by RBC Global Asset Management at all Fed tightening cycles since 1953 shows that in the 12 months leading up to the first Fed rate hike, the S&P 500 rose in 15 out of 17 occurrences with a median return of 17 percent over 12 months. In the year following the first rate increase, the results were also encouraging, up 13 times out of 17 with a median return of nine percent.

Arguably, we are almost halfway through the "year before" stage. The historical probabilities favour a bullish stance toward equities for another year at least, in our opinion.

## What could go wrong?

Our Recession Scorecard persuades us the business cycle is alive and well and has much further to run. It would take some powerful exogenous event or set of circumstances to produce a sustained downturn from here. There is no shortage of ink in the financial press about “torpedoes” or “black swans” that might threaten to do this. Examples might be the threat of contagion from possible credit defaults within the large Chinese property sector, a failure by the U.S. Congress to raise the debt ceiling by early December, or a geopolitical flare-up (Taiwan? Ukraine? Middle East?). The arrival of the omicron variant or any other that proved to be more deadly, or infectious, or resistant to existing therapies, serves as a reminder that the pandemic remains capable of seriously disrupting economic momentum.

These and many more come on and off the stage with regularity. They are always worth being aware of. So too is considering what they might mean for the economy and financial markets. But structuring a portfolio as if one or more carried a high probability of occurring soon would have left the portfolio uninvested, or at least underinvested, for most of the past 15 years if not much longer.

In our view, an investment portfolio diversified across asset classes where the equity component is diversified sensibly across industry sectors and owns the most attractive, resilient businesses in each sector is the appropriate stance in a world of unpredictable possibilities. As things stand, we recommend such a portfolio be moderately Overweight equities.

## Part II: Beyond COVID-19

As the pandemic diminishes, so too will the effects of the massive fiscal and monetary measures put in place in response to it. And as emergency support is withdrawn, we believe the pace of economic growth will increasingly come to depend on growth in the labour force and increases in productivity.

Projected growth in the labour force can be looked at through the lens of demographic trends. Productivity, meanwhile, is difficult to measure and even more difficult to predict.

### Working-age population is slowing or declining in developed economies

Birthrates have fallen steadily across the developed world for decades. They are now well below the 2.1 replacement rate (see table) needed to keep the population of a country from falling (ignoring any effects of immigration). This has brought about the absolute decline of the working-age population (15–64) in several important economies including: Japan, China, Germany, France, Italy, Russia, Spain, and the Netherlands. In most of these the decline is likely to continue for decades. In the case of Japan, for the rest of the century.

Some other developed economies will see the growth of this 15-to-64-year-old cohort slow down but not go into outright decline. The U.S., for example, saw this age group grow by 1.1 percent per annum between 1980 and 2000 and by just 0.7 percent per annum over the following 20 years to 2020. According to the UN’s population projections (the source for all the demographic data in this report), the U.S. working-

### Fertility rates

Number of live births per 1,000 women (ages 15 to 49 years) per year

| U.S. | Canada | UK  | Germany | France | Spain | Italy | Netherlands | Japan | China | India |
|------|--------|-----|---------|--------|-------|-------|-------------|-------|-------|-------|
| 1.7  | 1.5    | 1.6 | 1.5     | 1.9    | 1.2   | 1.3   | 1.6         | 1.4   | 1.7   | 2.2   |

Source - United Nations World Population Prospects

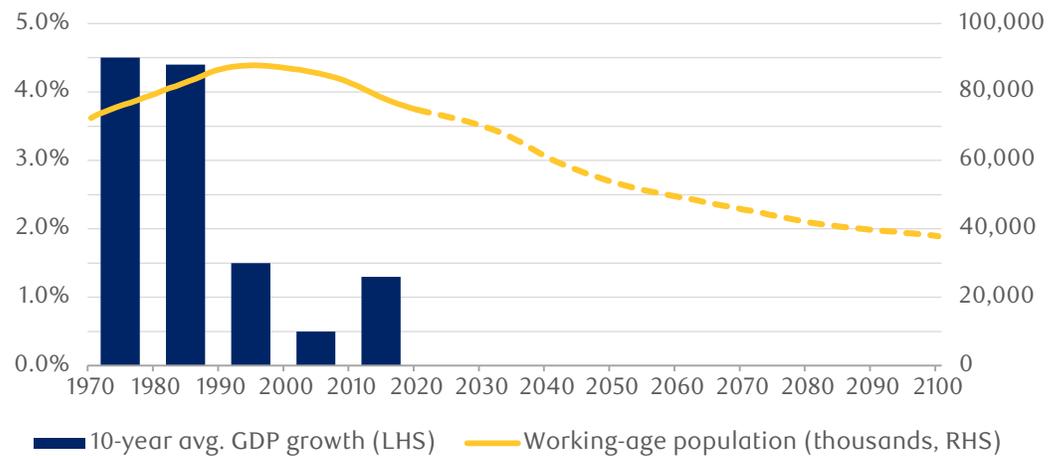
age population is projected to grow much more slowly between 2020 and 2040 at just two-tenths of a percent per annum.

A declining working-age population probably means a declining number of people employed, a substantial headwind to GDP growth. Japan is a case in point. From 1960 until 1990, its working-age population grew steadily and its GDP climbed by 6.5 percent per annum, consistently much faster than the U.S. economy (3.5 percent per annum). Many observers thought Japan would supplant the U.S. as the world’s largest economy by the turn of the century.

Instead, in 1989, Japan endured a massive collapse of real estate and the stock market, crippling its banking system. A decade later Japan’s economy had regained its footing but its growth “mojo” had deserted it. In the early 1990s, Japan’s working-age population began to decline and that drop accelerated over the next 25 years. Between 1999 and 2019, the country’s GDP grew by less than one percent per annum.

### Decline in working-age population hampers Japan’s economy

Japan average GDP growth by decade and population aged 15–64



After 40 years of world-beating GDP growth, Japan saw its working-age population start to decline in the mid-1990s; this ushered in 25 years of frustratingly slow economic growth, barely exceeding 1% per annum—with no end in sight.

Source - United Nations World Population Prospects, World Bank; population after 2020 estimated

So it’s hard to look at the demographic projections and make a case for even average GDP growth for most of the developed countries, as well as China. For the U.S. and Canada, there may still be a modest addition to growth from this source but not enough by itself to make one confident of predicting a robust upward trajectory for GDP.

It falls then to productivity growth to supply all the “oomph” to the U.S. economy, and to the rest of the developed world and China. Is that likely?

### Productivity comes and goes

Big innovations that have driven productivity sustainably higher have usually arrived out of the blue, taken a long time to be widely used and accepted, and were never developed (intentionally) as a result of government policy. Think of the steam engine, railroads, the telegraph, the internal combustion engine, electrification, mainframe computers, the personal computer, the internet, and the smartphone.

Today, the hope is that the digitisation of everything combined with Big Data will enable dramatic new technologies such as artificial intelligence to produce the next beneficial productivity wave. Promising developments, e.g., the unprecedented year of vaccine development, suggest this could be a rewarding avenue to go down. But the wait for highways filled with self-driving electric vehicles is likely to be measured in decades.

How much can productivity add to economic growth? In the decades from 1950 to 2019, the 10-year run rate for productivity growth in the U.S. ranged between 2.8 percent per annum and 1.1 percent per annum. The slowest decade was the one from 2010 to 2019, despite it being a stretch in which smartphone ownership and usage exploded, digitisation in many industries accelerated, and capital investment grew two-and-a-half times faster than the overall economy.

Productivity may be able to move into a higher gear in the coming decade, but it is far from a foregone conclusion that it will do so. The nonpartisan Congressional Budget Office (CBO), the most reliable long-term forecaster of the U.S. economy in our experience, appears not to be building in any overly optimistic expectations for productivity growth. From 2023 to 2031, the CBO forecasts U.S. GDP growth will average just 1.5 percent per annum, down from the 2.3 percent per annum it averaged from 2009 to 2019 and from the 3.5 percent to four percent average that prevailed from the end of World War II to the onset of the financial crisis.

### **Investment implications of slow growth**

The post-financial crisis decade taught us some things to expect in a prolonged stretch of slower growth.

The first would be even greater intensity of corporate competition. When the total economic pie is growing more slowly than it has been, then each individual business has to work that much harder to maintain its share of the pie, let alone gain share. In such a scrap, the biggest and strongest will likely come out on top, but the second- and third-tier competitors are not going to simply lie there and accept their fate. We see another big wave of tech spending as the most obvious consequence of a long stretch of intense competition.

The pandemic revealed that businesses well down the road to digitisation were much more resilient and took market share away from laggards. Spending on this is likely to accelerate over the coming decade.

In our view, a prolonged period of elevated competition will produce even greater corporate concentration. By the end of the post-financial crisis decade, it was the case in most sectors or industries that the largest three or four companies accounted for a greater share of sector revenues than the same number of the largest companies had when the decade began. The winners tended to be the largest businesses with the widest margins and deepest financial strength who could invest heavily in new technologies and could afford to lower prices to gain a competitive advantage. We expect more of the same.

We think equity portfolios should lean toward companies that are likely to be in this dominant group at the end of the next decade. Selecting for a company's ability to grow sales, earnings, and dividends as fast as or faster than the economy expands should permit a portfolio to deliver above-average returns and demonstrate more resilience in periods of economic downturn.



## A different kind of debt mountain

As the two-year-long saga of a global pandemic hopefully nears an end, we survey the corporate bond landscape in the aftermath of seismic shifts in these markets following unprecedented central bank intervention, and a notable increase in corporate debt loads in response to the crisis.

2020 easily set a record for corporate debt issuance with \$2.28 trillion of bonds and loans, comprising both new bonds and bonds issued to refinance existing debt. And through September of this year companies have already brought an additional \$1.56 trillion to market. Add it all up and the nonfinancial corporate debt and loan market now stands at approximately \$11 trillion, according to Federal Reserve data.

But debt levels can't simply be looked at in isolation, it's all relative. As the chart on the next page shows, corporate debt levels haven't strayed too far from long-term trends relative to the gross domestic product (GDP) of the economy, just one way of gauging the relative size of the corporate bond market. The spike in the corporate debt-to-GDP ratio caused by the pandemic was largely due to the drop in GDP. Now that GDP has recovered to pre-pandemic levels, and is still projected to grow at well above the two percent long-term trend through at least 2023 based on Bloomberg consensus forecasts for October, the ratio is likely to decline further below 50 percent.

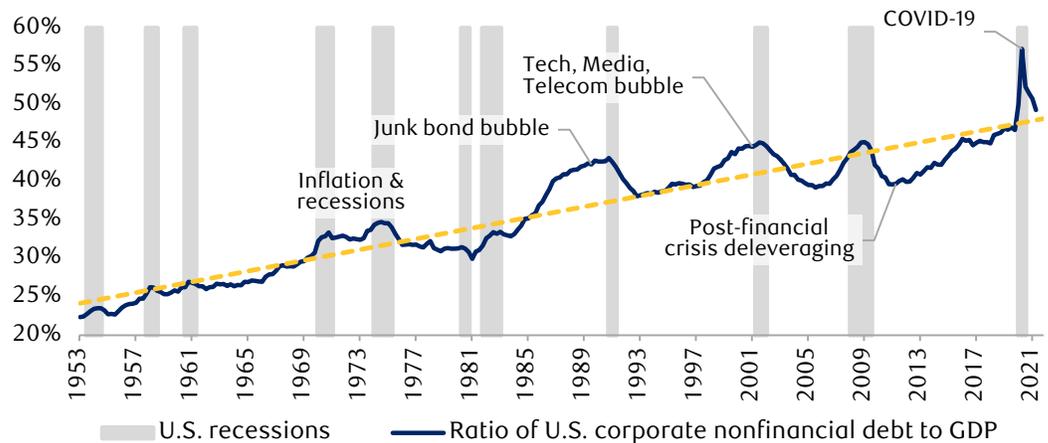
It is little wonder that companies are binging on debt as the average coupon paid by companies, according to the Bloomberg Barclays US Corporate Bond Index, is now at a fresh record low of just 3.6 percent, compared to more than four percent prior to the pandemic. The story is the same for the speculative-grade corporate bond market where the lowest-rated companies are paying an average interest rate of only 5.7 percent, down from nearly 6.5 percent prior to the pandemic, and also the lowest on record.



**Thomas Garretson, CFA**  
Minneapolis, U.S.  
tom.garretson@rbc.com

While fears abound that there are systemic risks due to elevated debt levels across the globe, the metrics cited above suggest to us that systemic risks from a growing U.S. corporate bond market remain low.

### With the economic recovery progressing, growth in corporate debt levels is back near its long-term trend



Source - RBC Wealth Management, Bloomberg; data through Q2 2021, based on \$11.2 trillion nonfinancial corporate debt and nominal GDP of \$22.7 trillion

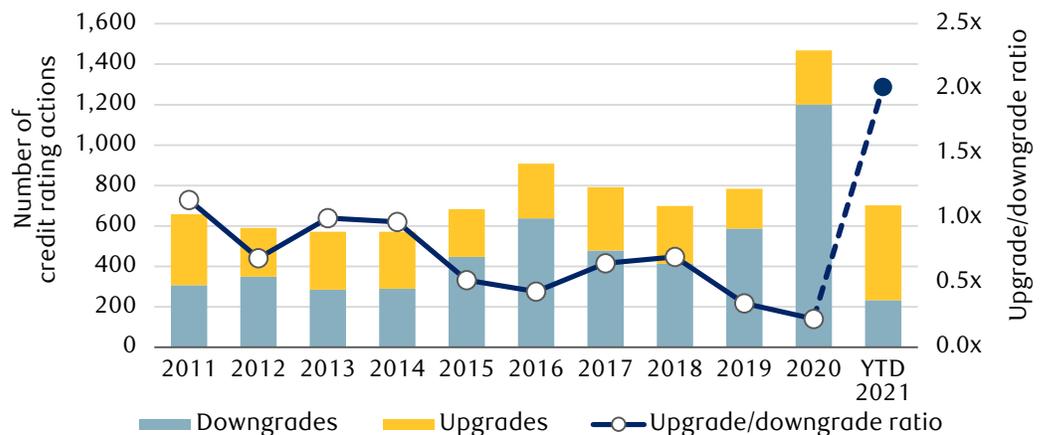
So debt is up, but liquidity is improved with record cash on balance sheets, and interest costs are down—might companies actually emerge from the pandemic in far better financial positions despite rising debt loads?

### The upside of down

It would likely come as little surprise that 2020 saw extensive negative rating actions taken by the major credit rating firms, with S&P Global Ratings downgrading the credit profiles of approximately 1,200 U.S. firms alone. But in 2021 upgrades have been the name of the game, with upgrades outpacing downgrades by a factor of nearly two-to-one.

And market-based assessments of risks across the corporate bond landscape support these trends. Since October 2020, the Bloomberg US High Yield Fallen Angels Index—or companies that saw their credit ratings downgraded from investment grade to speculative grade—has delivered total returns of over 15 percent, compared to just 10 percent for the broad speculative-grade index, and only two percent for investment-grade corporate bonds.

### After a number of credit rating downgrades in 2020, credit upgrades reached a decade-high level in 2021



Source - RBC Wealth Management, Bloomberg; shows credit rating changes by S&P Global Ratings, excludes credit watch changes; data through 10/27/21

## Pay thanks to the Fed?

Of course, the defining feature of the pandemic was the Fed's first foray into credit markets, taking the unprecedented step of directly lending to companies and purchasing individual corporate bonds and corporate bond-related exchange-traded funds (ETFs) on the secondary market.

Though the Fed's facilities were large in potential size, the actual support provided was ultimately quite minimal, with total holdings only approaching about \$15 billion, or barely 0.10 percent of the total market. In fact, as of August 2021 the Fed's portfolio of corporate bonds and related ETFs has either matured or been sold, with the Fed no longer holding any positions in corporate bonds.

The Fed's much-needed backstop likely helped to stem some of the worst possible outcomes of the 2020 recession, where the default rate peaked at roughly 7.5 percent, only half of the market-weighted rate of defaults seen during the recessions of 2001 and 2008. The greater factor was perhaps the brevity of the downturn, at barely two months due to a strong policy response that supported a lower default environment.

But what might this all mean for the future of Fed policy as it relates to corporate bond markets? Could a perceived backstop from the Fed forever change credit markets and how they function, especially in economic downturns?

In our view, the Fed's actions were unprecedented because the pandemic was unprecedented, given the effective shutdown of a globally intertwined financial system. We don't expect the steps taken to feature regularly in the Fed's toolkit in more run-of-the-mill recessions, though risk premiums demanded by investors in U.S. credit markets may decline modestly over the long term now that the Fed has broken the glass on such a measure.

## You get what you pay for

So corporate balance sheets are clearly on the mend, and systemic risks emanating from the U.S. corporate bond market appear to be low. How then should bond investors be thinking about portfolio positioning and opportunities in the aftermath of what has been an extraordinary two years for markets?

For investors, the economic recovery and improvement in the credit backdrop has already been nearly fully priced into the market. Credit spreads—or the yield offered by corporate bonds over comparable Treasury yields for associated credit risk—remain near historical lows. The Bloomberg index of investment-grade corporate bonds now yields just 0.85 percent over Treasuries, well below the decade average of 1.3 percent. Speculative-grade corporate bonds offer investors 2.9 percent over Treasuries, but that is also lower than an average yield advantage of 4.5 percent during the past 10 years.

While we think investors should have portfolio exposure to both sectors as part of a well-diversified bond portfolio—the risk exposures between the two are actually quite different.

Investment-grade corporate bond yields usually move closely in line with movements in Treasury yields—if Treasury yields rise, as is broadly expected over the next couple of years based on Bloomberg consensus forecasts, investment-grade bond prices could fall modestly as bond yields and prices move inversely.

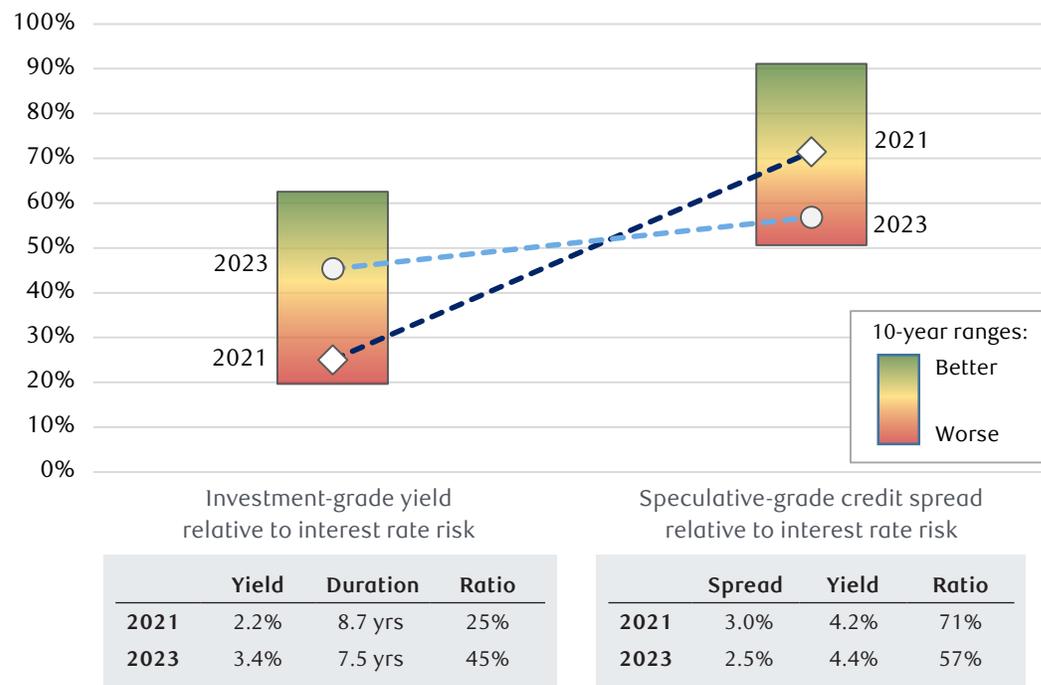
But speculative-grade bonds have less sensitivity to Treasury yields, and can actually perform quite well in a rising rate environment. If Treasury yields are moving higher

because of a better economic growth backdrop, then earnings for speculative-grade companies will likely improve, and credit spreads will likely fall—offsetting higher Treasury yields.

These dynamics and how we assess relative value within each sector according to key risk metrics are shown in the chart and tables below.

- Investment-grade corporate bonds:** If the key risk for investment-grade bonds is interest rate risk, then investors should expect to be compensated for that risk. But at the moment, the sector yields only 2.2 percent, while the duration—a measure of interest rate sensitivity—is at an all-time high of 8.7 years. That ratio of yield per unit of interest rate risk is just 25 percent, a historically low level of yield compensation for interest rate risk that isn't currently attractive for investors, in our view.
- Speculative-grade corporate bonds:** If the key risk for speculative-grade bonds is underlying credit risk, then investors should expect to be compensated for that risk. The sector offers a three percent yield over Treasuries for credit risk at present, for an all-in yield of 4.2 percent. This means that over 70 percent of the total yield is coming in the form of credit risk compensation, which is about equal to the average that investors have earned over the past decade.

**The pendulum may swing from favoring credit risk to favoring interest rate risk in the years ahead**



Source - RBC Wealth Management, Bloomberg consensus yield forecasts for October 2021

As the chart also shows, this relationship between the two sectors should shift back in favor of investment-grade corporate bonds as yields rise through 2023 based on current consensus forecasts.

The main point being, we would maintain a modest Overweight recommendation to speculative-grade corporate bonds at the early and middle stages of an economic recovery, but would begin to reduce that exposure as the business cycle matures. Current corporate default forecasts over the next 12 months are below two percent and

the sector can be an attractive place to augment portfolio income in what is still a low-yield environment.

Speculative-grade bonds may not be suitable for all investors. But over the near term we see few credit risks on the horizon for U.S. corporate bond markets, and little risk that the increased debt levels following the global pandemic will act as the potential source of the next crisis.



## Green energy transformation: Opportunities and realities

As the world pushes toward aggressive carbon reduction goals, the green energy transformation could represent a grand economic realignment rivaling the industrial and information revolutions. While there is little doubt in our minds that this transition can bring opportunities, investors should maintain a pragmatic approach given the serious gaps between ambitions and potential outcomes.

The green energy transformation is moving forward with ambitious carbon reduction goals set by countries, major cities, corporations, and multilateral organizations.

Some experts believe that meeting the goals would take the largest industrial mobilization ever in peacetime—and on a global scale. International agreements seek to lower global carbon emissions 30 percent by 2030 and reach near net-zero emissions by 2050 for most countries, with the ultimate aim of limiting the global temperature increase to 1.5 degrees Celsius this century compared to pre-industrial levels.

Such a transformation could require a grand economic realignment, affecting a wide swath of sectors, and at least rivaling the industrial revolution of the late 19th century and the technological revolution of the second half of the 20th century, if not surpassing them.



**Kelly Bogdanova**  
San Francisco, U.S.

[kelly.bogdanova@rbc.com](mailto:kelly.bogdanova@rbc.com)

There is little doubt in our minds this would bring opportunities for investors. We believe it could be a boon for companies involved with the multi-industry, multi-trillion dollar infrastructure buildout over the medium and long term. We view this as an important investment theme and anticipate it will attract capital from institutional and individual investors.

But there are practical considerations and challenges associated with getting from the fossil fuel-based energy system of today to a cleaner, advanced low-carbon energy system of tomorrow. Therefore, we believe the transition will have to strike a balance

between comprehensively addressing climate change and helping to ensure economic growth and the well-being of populations.

### A hefty price tag

The infrastructure and mineral requirements for the energy transformation are immense, and are compounded by the simultaneous shift toward a digital economy that demands an abundance of electricity.

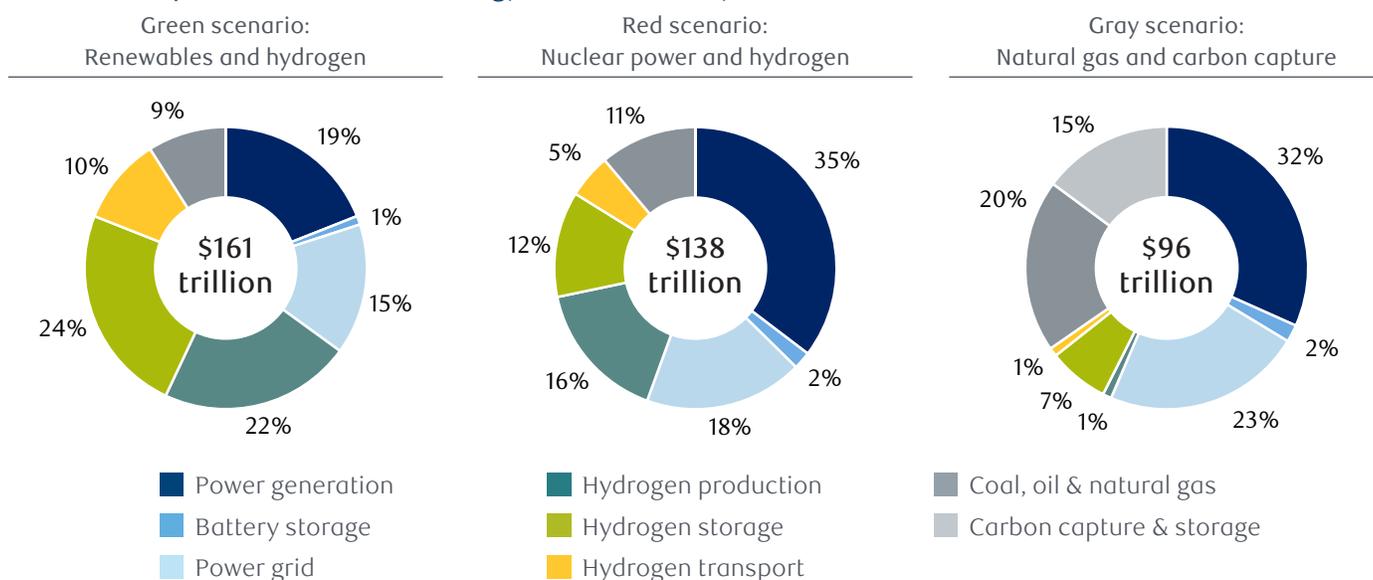
Yale Professor William Nordhaus, recipient of the 2018 Nobel Prize in Economics, estimates it would take roughly \$100 trillion to \$300 trillion in new capital on a global basis to reach net-zero emissions by 2050. “And much of that new capital must come in the form of technologies that are largely unproven or immature today. Research and development is urgently needed to make this possible,” he wrote in an October 2021 *Foreign Affairs* article.

Capital spending would come from governments, industry, and other private sector sources.

BloombergNEF (BNEF), a research firm concerned solely with the energy transition, estimates that over the next 30 years spending on energy and other infrastructure could range from \$94 trillion to \$175 trillion.

Within this wide range, BNEF highlights three scenarios that vary according to the main sources of decarbonization technologies. If spending is primarily focused on renewable energy (wind and solar) and [hydrogen](#), the firm’s “green scenario,” the price tag is estimated at \$161 trillion. If a meaningful portion of new power generation comes from low-carbon, advanced nuclear power reactors (which some countries advocate) and hydrogen, in addition to renewables, the infrastructure buildout would be around \$138 trillion, which represents BNEF’s “red scenario.” A lower-priced “gray scenario,” at around \$96 trillion, incorporates renewables but gives a relatively greater role to the combination of natural gas and other fossil fuels, and carbon capture and storage compared to the other two scenarios.

### Estimated required investments in energy infrastructure by 2050 in three different scenarios



Source - BloombergNEF “New Energy Outlook 2021”; the charts present the median value for each investment category wherever a range is presented in the original data

Regardless of which path the transition takes—or if it’s some combination thereof—BNEF estimates annual global energy and infrastructure investment would need to more than double, rising from about \$1.7 trillion today to \$3.1 trillion to \$5.8 trillion per year, on average, over the next 30 years.

These massive investment figures can be difficult to grasp. Narrower industry examples can help put into perspective the scale of transformation and potential opportunities for investors:

- In the U.S., 20 percent of electricity is currently produced by renewables. In order to reach the country’s goal of 80 percent by 2035, it would take at least three times the current level of renewable power, which means building roughly 55 gigawatts (GW) of renewable electricity capacity per year. The U.S. has never built more than 15 GW of renewable power in any given year.
- Consultancy firm McKinsey points out that the transformation is about more than just the energy and power industries. In the next 10 years, it anticipates a number of major sectors could be involved in decarbonization, including transportation, agriculture, as well as building and housing construction.

### The reality of getting from here to there

Where there are opportunities, there are also realities and challenges. “There is a vast chasm between aspirations and policies,” according to Nordhaus. The aggressive carbon reduction goals don’t currently line up with the steps proposed to achieve them.

One example: Nordhaus believes “the single most important step to achieve climate objectives is to put a market price on the emissions of carbon dioxide and other greenhouse gases.” He asserts that the price of carbon needs to be high and harmonized across sectors and countries in order to “change behaviors” of “millions of companies and billions of consumers.” Currently, [the market for pricing and trading carbon](#) is in its infancy and markets that have been established vary widely across regions. Nordhaus argues that the existing mechanisms are inadequate.

In an April 2020 article McKinsey wrote, “Decarbonizing global business at scale is achievable, but the math is daunting.” It went on to state that sweeping action starting now is required: “Our scenarios reflect a world in which the steepest emission declines would need to happen over the next decade. Without global, comprehensive, and near-term action, a 1.5-degree pathway is likely out of reach ... every part of the economy would need to decarbonize.”

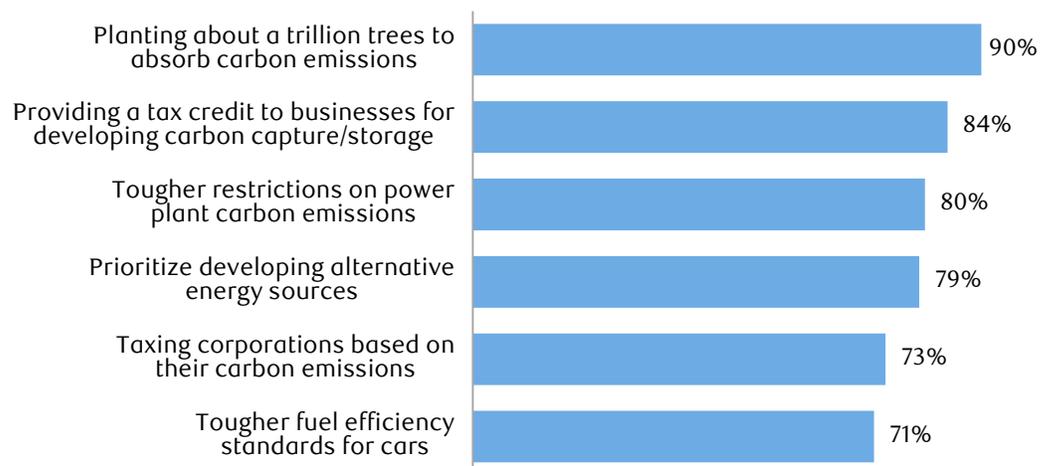
**Analysts widely acknowledge that major economic, business, and societal shifts would need to take place to achieve decarbonization goals. With this in mind, we think investors should consider a few practical challenges:**

#### People prioritize their pocketbooks

Will society tolerate the various lifestyle adjustments that could be needed to achieve the carbon reduction goals, particularly if there are additional costs and/or consumption restrictions for households, and the process is disruptive at times? Polls indicate that populations in many countries overwhelmingly back proposals to reduce the effects of climate change and prioritize alternative energy solutions, including in the U.S., which is illustrated in the Pew Research chart on the following page.

## Americans back a range of carbon reduction policies

% of U.S. adults who favor each of the following proposals to reduce the effects of climate change



Source - Pew Research Center; survey conducted 4/29/20–5/5/20, excludes respondents who gave other responses or did not give an answer

However, when push comes to shove, at this stage not everyone is willing to pay for it out of their own pockets. A large survey in Switzerland by domestic media outlets recently revealed that most Swiss citizens currently have little-to-no appetite for paying more for heating, fuel, and air travel in order to meaningfully reduce carbon output. The “yellow vest” protests in France, which began in 2018 in part because of opposition to a fuel tax increase, indicate that segments of populations could push back on carbon reduction initiatives if they negatively impact household finances or employment opportunities.

## Geopolitical questions

Will countries that view each other with healthy suspicion or as rivals (or worse) use the green energy transformation as geopolitical and geoeconomic tools of influence, or as a cudgel to ultimately impose punitive economic restrictions, sanctions, or tariffs? The carbon reduction goals embedded in international agreements de facto assume that rival countries will at least loosely coordinate their energy and industrial policies consistently, for many decades. These are laudable objectives, but history argues this will be difficult to achieve.

## The transition could be bumpy

The ongoing energy crisis in Europe and Asia is instructive. While this has a variety of root causes, including the unusual spike in demand for energy and manufactured goods following the COVID-19 shutdowns in 2020, the natural gas and coal price surges in these regions are intertwined with factors related to the energy transition.

- Europe’s growing pains:** The shift toward clean energy sources is moving forward more quickly in Europe than in other regions. The UK and EU are now more reliant on renewable power, especially wind—which is the goal—but they do not yet have enough infrastructure in place to provide renewable power consistently and cheaply, especially when the weather doesn’t cooperate, which occurred in 2021. They also don’t have adequate networks of backup energy sources. Natural gas prices surged in the region amid lower-than-expected renewable power output and because of diminished storage levels for the commodity due to cold weather in early 2021.

Furthermore, largely for geopolitical reasons, EU structures restricted Russian natural gas from flowing through the newly constructed Nord Stream 2 pipeline to Germany and then on to other European countries. On top of this, liquefied natural gas supplies anticipated from the U.S. were instead shipped to Asia, where they fetched higher prices.

- **China's ambitions collide with reality:** Coal prices surged in China following increased power demand due to cold weather in early 2021 and because of the spike in goods demand globally, along with restrictions on Australian coal supplies over a geopolitical dispute. Also playing a role were natural disasters in coal mining provinces, a drought in a key hydro power region, and a reduction in the growth of wind power generation due to weather. All of this transpired following a decline in the number of domestic coal mining enterprises by more than one-third during the past six years, as part of the country's effort to improve air quality and reduce greenhouse gas emissions. To manage through these price and demand challenges, while at the same time attempting to fulfill lower power consumption targets, the Chinese government restricted electricity consumption at factories, and some cities experienced intermittent blackouts. China's long-range goal is to curtail its use of coal-fired power generation and significantly expand low-carbon nuclear power and renewables capacity, but this infrastructure will take years to build.

The experiences of China and Europe illustrate that the path toward zero emissions and a clean energy economy won't necessarily be seamless. We think many countries will face obstacles along the way.

### **A marathon, not a sprint**

Despite the challenges and uncertainties, we believe the energy transition could be a boon for companies involved with the multi-industry infrastructure buildout and resource extraction associated with a green, digital economy. Even if the trillions in infrastructure spending forecast by BNEF, Nordhaus, and other experts is only partially met, the scale of change could revolutionize segments of the global economy. We think this will be a major investment theme going forward.

For the time being, we would focus on opportunities that are likely to find their way to market in the next 5–10 years and are not as dependent on substantial, coordinated long-term government subsidies or private sector investments that have yet to be designated or allocated, or may not fully pan out.

While individual equities of companies involved in the energy transition and exchange-traded funds that group such companies together can be good sources of investment ideas, we recommend investors also consider mutual funds and money managers that specialize in this area. This is a multi-decade marathon, not a sprint. We think portfolio managers who focus on the green energy transition day-in and day-out, keeping abreast of the near- and medium-term opportunities, with the long-term view in mind, could have the upper hand as developments unfold.



## Xi-ism faces the challenges of China's economic evolution

China boasts the world's second-largest economy, has made the greatest contribution to global GDP growth over most of the past four decades, and is the biggest consumer of most industrial commodities. However, things are changing: the country's annual rate of GDP growth has already slowed by two-thirds from the peak it reached prior to the financial crisis of 2008.

Demographic and productivity challenges, which began to emerge almost a decade ago, now appear likely to slow China's economy even further over the next 20 years. The policy response to these challenges may entail profound political and economic changes. We look at how China is attempting to adapt in order to meet these challenges, and the implications for investors in the coming decade.



**Frédérique Carrier**  
London, UK

frederique.carrier@rbc.com

The Chinese Communist Party (CCP) recently celebrated its 100-year anniversary, highlighting its remarkable longevity even within the context of the country's 5,000-year history. Few regimes in modern times have remained in power more than 70 years.

Under the Party's watch, China has experienced a profound metamorphosis—from a poor agrarian country led by Mao Zedong in the 1960s, to a global economic titan today. It has given rise to technology giants, built ultramodern infrastructure, brought free-market forces into its economy, and become an integral part of the global supply chain. Throughout this process, the CCP has successfully changed tack to adapt to circumstances and foster rapid modernization.



**Jasmine Duan**  
Hong Kong, China

jasmine.duan@rbc.com

Now, despite its might, China is challenged by two trends that have become entrenched over the past decade: a persistent decline in the working-age population, and a decreasing rate of productivity growth. A confluence of these forces could halve China's economic growth compared to recent levels, according to World Bank forecasts that see growth declining to 4.5% per annum in 2019–2031 and falling further to 3.5% the following decade.

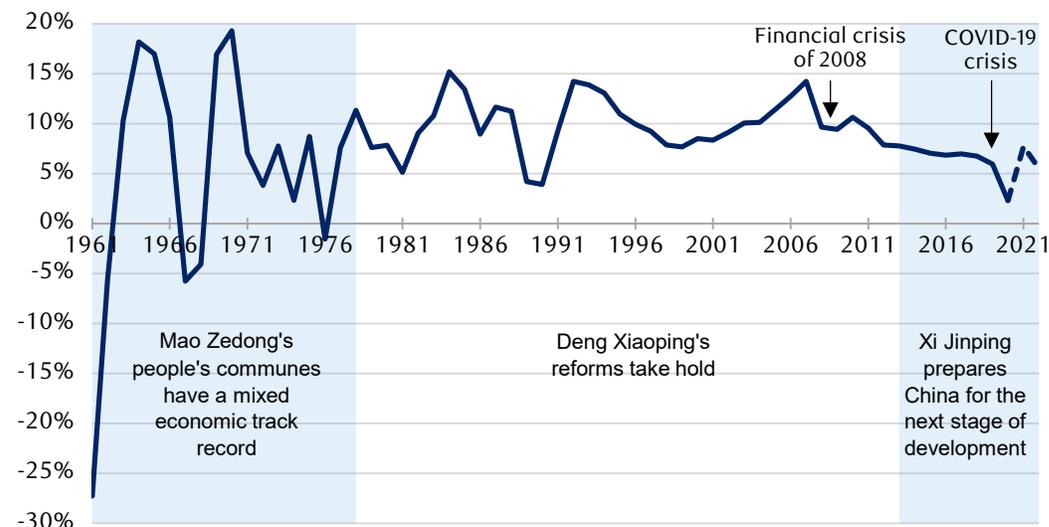
## A productivity challenge

China's demographic challenge, largely a product of the "one child" policy it pursued from 1979 to 2015, is well documented. The rapid aging of the country's citizens, more than a third of whom are now over age 50, recently led the government to further relax family planning measures to allow three children per couple.

A lesser known, yet equally formidable challenge is the decline in China's productivity over recent years.

### Economic growth is being challenged by an aging population and waning productivity

China's annual GDP growth, 1961–2020



Source - RBC Wealth Management, World Bank

### Reforms and industrialisation spur growth

Starting in the late 1970s, market-oriented reforms produced notable improvements in productivity, enabling large state-owned enterprises (SOEs) to catch up to private-sector productivity levels. This, combined with the move away from agriculture into industry, propelled China's economic growth to an average of 10% per year until the 2008 financial crisis.

The implementation of these reforms was due in large part to Deng Xiaoping, who emerged as leader within a few years of Mao Zedong's death in 1976. In a stark departure from Mao's legacy, Deng dismantled his predecessor's "people's communes," which had destroyed productivity, deciding instead to rely on market forces in the countryside. Many SOEs were closed down, and those that remained were given greater autonomy. Deng allowed non-SOEs to enter the market, and spearheaded the opening of the country to the world, creating competition. Reforms continued into the 1990s, as SOE restructurings deepened and consolidation accelerated.

At the same time, the shifting of China's labour force from agriculture to industry made higher productivity growth possible. The agricultural labour force, which represented almost 75% of all workers in the late 1970s, declined steadily to less than 25% four decades later.

### The expansion of the service economy and the changing role of SOEs

After the 2008 financial crisis, however, the rate of productivity improvement started to fall. A 2020 World Bank report points out that similar productivity decreases also

occurred in many other economies due to the waning of the information technology boom, the aging of workforces, and slowing global trade integration. But the report also identifies two factors specific to China: a growing economic emphasis on services, and the role of SOEs in providing “public goods.”

In the wake of the crisis, China started to rebalance its economy away from foreign demand and manufacturing, and towards domestic consumption and services.

The labour force, which had flowed relentlessly from agriculture to industry over the preceding three decades, now began to flow predominantly into services. This weighed on productivity. Services such as finance, leisure, and entertainment are less open to competition and foreign direct investment than industry. With less competition, the productivity of the average worker started to wane across the whole economy. Fewer new firms entered the market, and fewer underperforming companies left the market. The issue was compounded by the growth of noncommercial undertakings such as social and community services, which have inherently low productivity growth.

Moreover, according to the World Bank, SOEs were called upon to fulfill public policy objectives in the aftermath of the global financial crisis, and this also contributed to derailing productivity improvements. It’s important to understand that SOEs play a central role in macroeconomic stabilization in China. Mainly involved in infrastructure construction, they may cooperate with local governments by helping to build and run infrastructure projects—often at the expense of their own financial performance.

### **Debt-led growth**

But this decline in overall productivity went largely unnoticed as economic growth continued at a brisk pace thanks to a large debt-financed public-sector stimulus package. Launched in 2008, it emphasized local government spending on infrastructure and housing as a response to the economic impacts of the global financial crisis. According to the South China Morning Post (owned by Alibaba Group), approximately four trillion yuan (\$600 billion) has been invested in infrastructure since 2008.

Local government officials have been strongly incentivized to produce growth in their regions, because good economic performance is a major factor in officials’ ability to advance within the echelons of the CCP. This ensures that whoever ends up at the helm of the country has been a successful administrator.

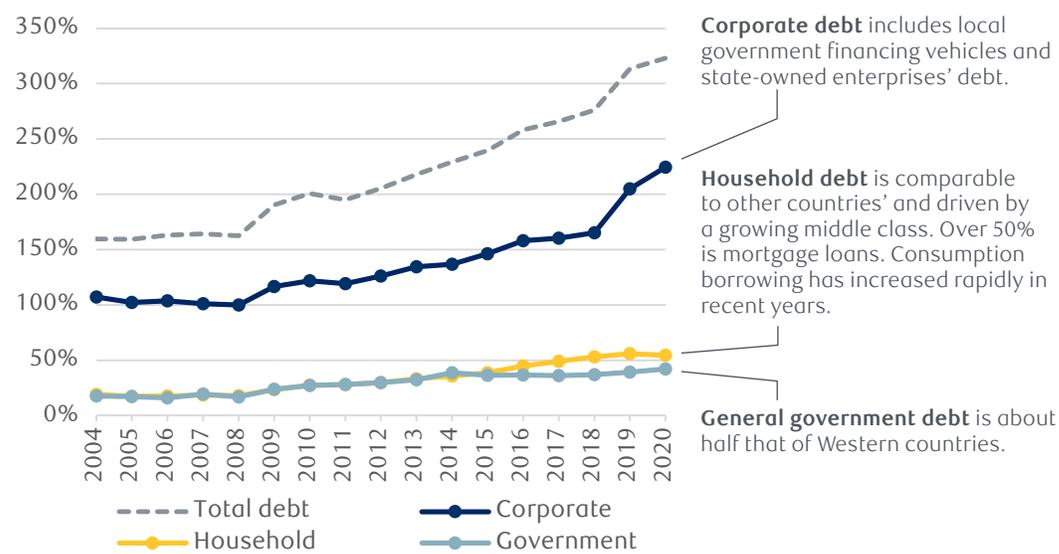
It is this policy of requiring provincial and municipal governments to fund infrastructure projects that has enabled China to keep central government debt at roughly half the level of western nations; according to China’s National Institution for Finance and Development, a government-linked think tank, central government debt totals just 45% of the country’s GDP.

To finance their spending plans, local governments establish companies known as Local Government Financing Vehicles (LGFVs). The governments borrow through these companies, using land assets as collateral. Incurring debt to finance spending is necessary because the power to levy taxes is largely reserved for Beijing. Consequently, securities issued by LGFVs make up as much as 10% of the Chinese bond market.

These LGFVs, along with borrowing by SOEs, account for the bulk of Chinese corporate debt—which now stands at an uncomfortably high 200% of GDP. LGFV debts in particular are currently valued at some 40 trillion yuan, or more than \$6 trillion, or just over 40% of GDP, according to the International Monetary Fund.

## China's corporate debt level has surged

China debt as percentage of annual GDP



Source - RBC Wealth Management, Bloomberg; yearly data since 2004

As growth slowed precipitously during the global COVID-19 pandemic, largely as a result of lockdowns imposed to limit the virus's spread, S&P Global Ratings downgraded the creditworthiness of some LGFVs that had become increasingly reliant on bank loans to pay interest on their bonds. The failure of some SOEs in 2021 further rattled bond markets. The People's Bank of China kept interest rates at historic lows and ensured liquidity was sufficient to reduce the likelihood of a widespread crisis.

Aware that high levels of indebtedness can imperil stability, China has declared deleveraging and de-risking to be one of its five core government tasks of 2021. It marginally lowered its quota for local government issuance of special bonds, tightened its supervision of LGFVs, and announced that LGFVs should restructure or go bankrupt if they are unable to pay back debt. These measures are likely to encourage LGFVs to deleverage in the medium to long term.

Even so, we see the difficulties surrounding LGFVs as symptomatic of China's structural challenges. Such a high level of fixed asset investment in infrastructure—as much as 40% of GDP, or roughly twice the world average—is likely to prove unsustainable, in our view, given the steady decline in productivity.

Moreover, we see a need for fiscal reforms that better align local governments' taxation power with their spending requirements. Chinese media have reported that property taxes, already being tried in Shanghai, could be introduced more widely. This would be in line with the stated goals of China's leadership to redistribute wealth and reduce speculation in hyped sectors such as real estate.

## Facing the challenge

China's growth potential remains higher than that of most developed countries, but we believe its long-term prospects depend on reversing the decline in productivity. The Chinese government seems aware of this, as evidenced by President Xi Jinping's recent actions.

Much as Deng Xiaoping broke from his predecessor's legacy, Xi is putting his own mark on the country. While Deng talked about separating the roles of the CCP and the government, Xi has brought them closer together, putting the party firmly in charge of the government and reasserting its control over the economy. As RBC Global Asset Management's Chief Economist Eric Lascelles points out, this resurgence in the CCP's authority comes at a time when technology—especially social networks—threatens to usurp some of the government's traditional influence.

### China's Five-Year Plans

Annual budgets and economic goals are framed within the context of the current Five-Year Plan.

Early Five-Year Plans were rigid, setting production quotas for commodities such as steel and grain that had to be achieved by work units.

Under Deng, objectives became more subtle, indicating the direction in which the Party wanted to steer the country.

Local governments, state-owned enterprises, and the private corporate sector align their strategies accordingly.

The goals set out in the 14th Five-Year Plan, issued in November 2020, include:

- To reach “high-income country” status, defined by the World Bank as an annual Gross National Income (GNI) per capita of more than \$12,700 (it is currently \$10,500).
- To pursue President Xi's “dual circulation strategy” of reducing dependence on foreign markets (especially in the area of technology) while remaining open to the outside world and welcoming foreign investment.
- To achieve stable, equitable and sustainable growth.
- To increase investment in research and development by at least seven percent per annum.
- To move towards a green economy by reducing dependence on coal and boosting renewables capacity by 40 percent by 2025; electric vehicles are targeted to make up 20 percent of new car sales by 2025, from five percent now.

The stark shift away from the unbridled pro-growth capitalistic approach of the Deng era to one that favours government intervention to promote broader, more stable growth is highlighted in China's 14th Five-Year Plan, issued in November 2020.

The Chinese government's recent regulatory crackdown reflects this new direction. Lascelles points out that the new measures appear at first glance to run counter to the goal of unleashing productivity; in the short run, most new regulation will dent company profits and economic growth. But to the extent these rules incrementally reduce corporate concentration, encourage competition, and prune away excesses, they could benefit the economy, society, and financial markets over the long run. He acknowledges, however, that the overall benefits could be tempered by the impact of some measures that seem to be mainly about flexing government muscle.

As Lascelles also notes, similar trends of increased regulation are afoot in other regions. Europe has pursued aggressive antitrust measures against tech giants, and the U.S.—under both President Trump and now President Biden—looks to be tilting in that direction as well. China's regulatory crackdown could make it easier for the U.S. to pursue its own antitrust measures against the tech sector, insofar as it reduces the risk of U.S. companies losing global market share to Chinese competitors operating under a regulatory regime hitherto seen as more permissive.

## Government regulatory crackdown

| Policy goal   | Government action  | Examples   |
|---|--|--|
| <b>To maintain financial stability</b>  | Introduce and enforce anti-monopoly legislation  | Internet retailer Alibaba was fined US\$2.8 billion in an anti-monopoly probe. Meituan, a food delivery company, was fined US\$0.5 billion for violating anti-monopoly regulations.  |
|   | Minimize government intervention and bailouts  | Huarong Asset Management, the troubled “big four” state-owned asset manager deemed systemically important, received a \$7.7 billion liquidity injection. The government has so far refused to bail out Evergrande, one of the country’s largest property developers, which is struggling to meet interest payments on its \$300 billion liabilities, as it sees the risk as containable. |
|   | Regulate the FinTech sector  | Alibaba-backed FinTech giant Ant Group’s initial public offering was unilaterally suspended, and the group was prompted to restructure as a financial holding company to ensure its financial-related businesses are fully regulated.  |
|   | Stabilize commodity prices   | Authorities announced they would take measures to stabilize commodities prices and crack down on speculation.  |
|   | Crack down on crypto trading and mining  | China’s central bank now considers all crypto-related transactions to be illicit financial activity.   |
| <b>To attain a social democratic form of capitalism, as opposed to the U.S.’s profit-centric capitalism</b> | Protect the vulnerable   | Food delivery company Meituan has been required to ensure its workers are paid above minimum wage and receive basic social insurance, and to relax its delivery deadlines.   |
|   | Align business practices with national goals   | The lucrative tutoring sector has been barred from earning profits. Prohibitive tutoring fees had become one of the main factors discouraging families from having more children, thereby worsening the country’s demographic issue.   |
|   | Require businesses to contribute to society  | Alibaba pledged roughly US\$15.5 billion to support “common prosperity” through programs including improving digital infrastructure in undeveloped regions. Tencent will allocate US\$15 billion to social responsibility programs, including medical assistance.  |
|   | Ensure social impacts are taken into account   | China restricted the time children can spend playing online videogames to three hours per week.  |
| <b>To strengthen data security and user privacy protection</b>  | Discourage U.S. listing of Chinese companies, to avoid disclosure of information to U.S. regulators. | Ride-hailing app Didi, which had raised funds in the U.S., was removed from the official Chinese app store and told to stop signing up new users until a cybersecurity review has been concluded.  |
|   | Protect user privacy   | Concerns that Chinese digital giants were becoming too powerful and mishandling users’ data led authorities to clamp down on powerful tech firms. Ant Group will be required to strengthen protection of users’ data.  |

Source - RBC Wealth Management

Other measures, such as redirecting funds from infrastructure spending into productivity-improving investments, should also help China meet its productivity challenge. Xi’s administration has penciled in \$621 billion for research and development spending in 2021, the largest allocation of any country in the world, slightly ahead of the U.S.’s \$598 billion. Moreover, China’s acquisition of 783,000 industrial robots in 2019 represented a 21% increase over the previous year; according to the International Federation of Robotics, the country was home to nearly one-third of the world’s installed industrial robots in that year. Such trends, if they persist, could go some way to improving productivity.

### Some investment implications

The scale of China’s economy, its contribution to global GDP growth, and its appetite for industrial commodities have made it a powerful locomotive for the world economy and have had transformative effects on most other economies, both large and small. Now, as the country’s leadership seeks to implement a more inward-looking policy

mix in order to foster a broader, more balanced domestic economy and regain its competitive edge in the international arena, developments in China are likely to provoke another round of economic effects beyond its borders.

The prospect of a further persistent slowdown in China's GDP growth into the 3%–4% range, possibly lower; the shift in policy emphasis away from infrastructure spending toward productivity-enhancing, technology-driven investment; the drive to promote renewable energy development as a way to reduce dependence on foreign energy imports; and the crackdown on unconstrained capitalism and conspicuous wealth in favour of broader gains for the average citizen—we believe all will have important ramifications for those trying to do business in China, as well as for those competing with Chinese firms in the global marketplace.

**A more difficult market to penetrate.** After Deng exhorted the Chinese people to strive to “get rich,” a cachet quickly developed around the possession of well-known global brands—from burgers, to jeans, to designer clothing, to pricey Bordeaux wines and luxury cars. But in recent years, domestic brands have emerged and, backed by digital marketing, have rapidly gained a commanding market share. In the luxury goods space, where global brands have feasted for thirty years on the wealth of a rapidly expanding Chinese middle class, conspicuous consumption is no longer lauded as evidence of China's arrival as a global economic powerhouse. Unbridled wealth that is not aligned with the direction and goals set by the country's leadership is likely to be discouraged. “Access to the China market,” coveted by many global businesses and always difficult to achieve, looks to become even more difficult in light of the goals set by China's leaders.

**Diminished outlook for industrial commodities.** A reduced emphasis on infrastructure spending as a way to achieve regional growth targets, along with what appears to be a forced deleveraging of the very large property development sector (where a large proportion of the need for modern housing has already been met) could mean a slower uptake of many industrial commodities. An important brick in the wall of the “commodity supercycle” thesis has been the expectation that infrastructure development would remain the preferred mode of fiscal stimulus in China. In the event, infrastructure does not feature among the major goals of the current Five-Year Plan, and there are indications it will be used more sparingly and deliberately going forward.

**Productivity-enhancing investment by China will require a competitive response by developed economies.** The wholesale relocation of production facilities to China by global manufacturers ended some years ago, as global firms faced numerous difficulties including arbitrary, rapidly changing regulations; logistical challenges; poor technology security; and the rapid escalation of Chinese labour costs. If China's heavy investment in productivity-enhancing capital goods proceeds at the pace encouraged by its leadership, manufacturers and other businesses around the world will have to respond in kind.

In our view, key trends driving global change today will continue into the future: the digitization of everything that can be digitized will accelerate, robots will become more ubiquitous and extend their reach into small and medium-sized businesses, and artificial intelligence will be embraced as an essential competitive tool. It is unclear whether all this will yield the necessary productivity gains—for China, or the rest of the global economy—but if the “other guy” is spending big on what looks to be a transformative technology or product, then it may simply be too risky for competitors not to keep pace. Another long stretch of heavy, tech-driven spending likely lies ahead.

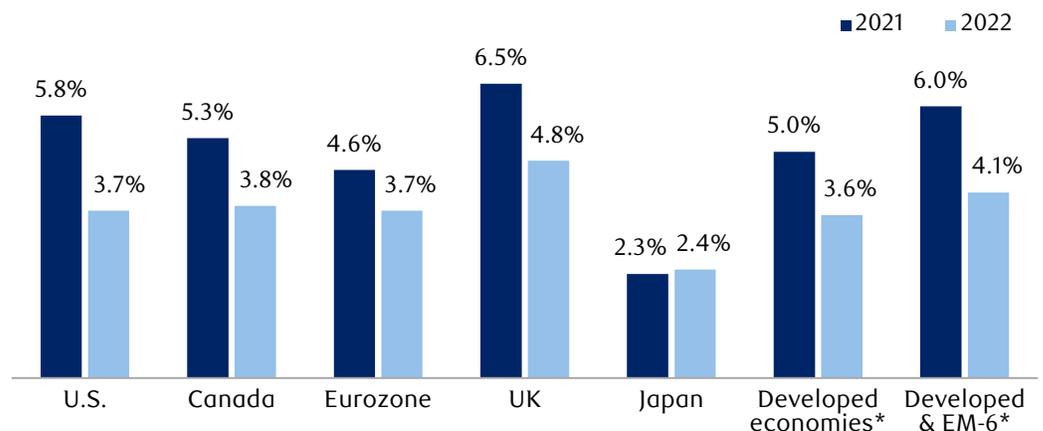


## RBC's investment stance

The U.S. and global economies should deliver above-trend growth again in 2022, albeit at a less robust and possibly bumpier pace than in 2021 due to lingering COVID-19, inflation, supply chain, and labor market pressures.

The strong initial recovery phase that transpired following the depths of the pandemic has already given way to a more normal yet above-average growth phase. We think this will become more entrenched in 2022. Industries most constrained by COVID-19 headwinds should continue to normalize as long as omicron or some other variant does not result in disruptive lockdowns. An elevated level of infrastructure spending by governments, led by the U.S., should keep fiscal policy relatively accommodative. While China's ongoing regulatory reform agenda poses risks, we think the Chinese authorities will fine-tune fiscal and monetary policies as needed to support growth. Inflationary pressures, which have spread to all regions, will be one of the key challenges facing major central banks. Following are our thoughts about portfolio positioning for 2022 by asset class and region, and our forecasts for currencies and commodities.

### RBC's annual real GDP growth forecasts (y/y)



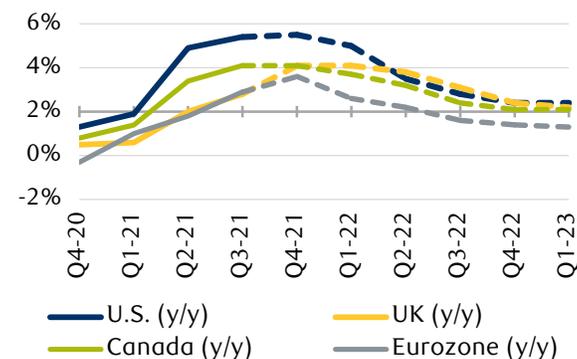
\* Estimates based on purchasing power parity (PPP) calculations; EM-6 represents the six largest emerging market economies, including China.

Source - RBC Global Asset Management; data through 11/19/21

## Fixed income

Central banks will aim to right-size policy support in 2022 amid an ongoing economic recovery, and the process of dialing back accommodation will be about finding the right balance. Current market expectations for multiple rate hikes from many major central banks are too aggressive, in our view. We see policymakers continuing to view elevated inflation as temporary, with central banks staying reasonably patient in pursuit of complete economic and labor market recoveries.

### Over the hump: Persistent inflationary pressures expected to fade through 2022



Note: Horizontal axis crosses at approximate 2% target for most central banks; dashed lines show Bloomberg consensus forecasts as of October 2021 for consumer price indexes.

Source - RBC Wealth Management, Bloomberg

## United States

Thomas Garretson, CFA – Minneapolis

tom.garretson@rbc.com

- The window for Federal Reserve policy rate hikes will open in the middle of 2022 following the completion of its bond-buying program around June, based on the current rate of reduction in its asset purchases. We expect the Fed to have a more stringent test for rate hikes, however, the most important of which could be an unemployment rate below 4.0%, a mark which should be achieved by the fourth quarter of 2022, according to the Fed's latest set of economic projections. This supports our call for the first 0.25% rate increase at that time.
- Treasury yields, and the shape of Treasury yield curves, could be the dominant theme of 2022 as the Fed nears the point of raising short-term policy rates. But while short-term policy rates may climb, we expect stable long-term Treasury yields, with the 10-year Treasury likely to hold below 2.0% for the balance of 2022. This should result in a gradually flattening yield curve. Should it flatten too much, or even near the point of inverting, it could raise fears about the durability of the economic recovery.
- Credit markets will likely remain well supported through 2022 on account of strong corporate balance sheets and historically low default rate forecasts. We remain comfortable augmenting portfolio income with lower-rated credits and preferred shares as long as the economic recovery remains intact.

## Canada

Ryan Harder, CFA – Toronto

ryan.harder@rbc.com

- While 2021 involved a great deal of debate about the timing of central bank rate hikes, 2022 is likely to be the year that policy rates actually start to rise. The Bank of Canada (BoC) has been on the more aggressive end in dialing back COVID-19 monetary stimulus, and we expect this will be the case in the coming year as well.
- Despite the likelihood of rate increases in 2022, the additional yield available when extending duration in bond portfolios compensates investors now for rate hike expectations that the market has already priced in. We see intermediate-term bonds as relatively attractive, as they offer a meaningful pickup in yield over cash, but without taking undue interest rate risk should inflation prove to be more persistent than expected.

- Corporate credit was very well supported in 2021 by near-zero interest rates and the BoC's asset purchases. While support from the BoC is now being gradually reduced, we expect the economic backdrop to remain accommodative for corporate bonds in the coming year. However, this environment is already represented in the low compensation available for assuming credit risk, particularly in high-yield bonds, and to reflect this we are recommending a high-quality bias in corporate bond allocations.

## Europe & UK

Rufaro Chiriseri, CFA – London

rufaro.chiriseri@rbc.com

- Amid higher inflation and slowing growth concerns, the Bank of England (BoE) sent a strong signal on future monetary policy at the November 2021 meeting. The BoE stated that if the post-furlough labour market data is “broadly in line with the central projections in the November Monetary Policy Report” then an increase in interest rates would be warranted. We now expect a December 2021 rate lift-off followed by further hikes in Q1 and Q3 2022 to reach a 0.75% bank rate.
- The European Central Bank's (ECB) December 2021 meeting is anticipated to have significant announcements on the tapering of the Pandemic Emergency Purchase Programme (PEPP) and the future of the existing Asset Purchase Programme (APP). We expect the APP to continue, which would support yields, albeit to a lesser extent than the PEPP, and we see a risk of purchases being expanded to offset the end of the PEPP in March 2022. Recent upbeat ECB comments lead us to believe that conditions for a rate hike are unlikely to be met in 2022.
- Reduced asset purchases and tight spreads mean credit returns are highly sensitive to Gilt and Bund yield movements; we remain selective across issuers. Gilts are likely to underperform Bunds into next year due to diverging central bank policies.

## Asia Pacific

Calvin Ng – Hong Kong

calvin.ng@rbc.com

Chun-Him Tam – Singapore

chunhim.tam@rbc.com

- We believe the volatility in the Chinese bond market that began in 2021, due to efforts to step up economic reforms, has a high likelihood of persisting into 2022 as policies remain uncertain across sectors. In particular, the deleveraging campaign within the property sector has led to a massive volatility spike mainly on refinancing concerns. Unlike previous cycles where the government fine-tuned its policies after a gradual correction started, to date, the government has remained steadfast in its reforms.
- That said, Asia high-yield bonds have repriced to multiyear lows with the JP Morgan Non-Investment Grade Index showing that companies are paying an average yield spread of 10% over the benchmark rate. This is the highest level in the past decade and is starting to look attractive for longer-term investors with the risk appetite to invest in a diversified portfolio of Asia high-yield bonds. One caveat is that the index composition is roughly 50% Chinese property developers, which are expected to see further consolidation within the industry.
- Looking beyond the volatility, we believe the government's reforms should create a better long-term growth foundation for China, enabling the country to overcome the middle-income trap and to establish a more developed credit market.

## Equity

Our outlook for 2022 features worthwhile global equity returns and moderate earnings growth, supported by above-average GDP growth and strong consumer and business capital spending. Major central banks seem set to begin raising interest rates, yet equity markets typically perform well surrounding the first rate hike. Furthermore, even as rates inch higher, we expect them to remain rather low by historical standards.

These factors should make equities the asset class of choice once again in 2022. We recommend holding a moderate Overweight position in equities.

## Price-to-earnings ratios of major equity indexes

| Index              | Forward P/E | 10-year average |
|--------------------|-------------|-----------------|
| S&P 500            | 21.9x       | 17.2x           |
| S&P SmallCap 600   | 16.5x       | 19.4x           |
| S&P/TSX Composite  | 11.9x       | 15.5x           |
| STOXX Europe 600   | 15.2x       | 14.8x           |
| FTSE All-Share     | 10.6x       | 13.9x           |
| Hang Seng          | 11.7x       | 11.3x           |
| Shanghai Composite | 12.6x       | 11.5x           |
| TOPIX              | 14.3x       | 14.9x           |

Source - Bloomberg; data as of 11/19/21; represents forward price-to earnings (P/E) ratios based on consensus earnings forecasts for the next 4 quarters (Q4 2021 – Q3 2022)

## United States

Kelly Bogdanova – San Francisco

kelly.bogdanova@rbc.com

- Above-trend GDP growth should set the stage for moderately higher U.S. earnings growth and stock prices in 2022. The inflation, supply chain, and labor headwinds should gradually dissipate as we move further away from the peak of the COVID-19-related disruption, but are unlikely to fully abate. We think most industries and leading companies will continue to manage around these headwinds by containing costs and using technology to support productivity. The S&P 500 consensus earnings forecast of \$221 per share for 2022 seems achievable and has potential for upside, in our view, so long as new COVID-19 variants do not seriously disrupt economic momentum.
- The market will be laser-focused on gauging both the timing of the Fed's first rate hike, likely in 2022, and the magnitude and pace of the rate hike cycle thereafter. Historically, the S&P 500 has performed well in the 12 months that precede and follow the first rate hike, on average, and has outperformed bonds during each tightening cycle since 1989. Typically, a bull market becomes threatened only when rate hikes pile up, constricting access to credit, and when recession risks rise notably. We don't foresee this occurring in 2022. We would moderately Overweight U.S. equities to start the year.

## Canada

Sunny Singh, CFA – Toronto

sunny.singh@rbc.com

- We expect the solid market performance of 2021 to continue into 2022, albeit at a more moderate pace. Above-trend global economic growth should persist, which we expect to support the Canadian market given its cyclical orientation.
- The Canadian banks have had a strong year, and valuations remain reasonable. The biggest risk to the bank group, in our view, is the Canadian housing market. However, pointing to a catalyst that may shift the positive momentum remains a challenge. Canada's population growth over the next several decades is expected to be amongst the strongest globally, while the persistence of supply-side constraints also supports continued strength in housing. Overall, we remain positive on the bank group on the expectation of improving loan growth and increased cash returns to shareholders given regulatory capital restrictions have been lifted.

- West Texas Intermediate crude oil prices have reached multiyear highs and appear well supported heading into 2022 led by expectations for post-pandemic demand growth to outpace supply. The supportive backdrop for oil leaves us constructive on oil producers as valuations remain attractive amidst impressive free cash flow generation potential.

## Europe & UK

Frédérique Carrier – London

frederique.carrier@rbc.com

- We would hold an Overweight, or above-benchmark, position in European equities. Ongoing fiscal support and a relatively dovish European Central Bank should continue to support the economy, while supply chain disruptions should start to diminish over the course of 2022. Moreover, the region typically outperforms as bond yields rise, and valuations remain attractive on most measures. With the initial bounce-back phase of the business cycle morphing into a more normal expansion phase, we suggest positioning equity portfolios with secular growth stocks and select quality cyclicals, ensuring companies have strong pricing power to defend their profit margins in an elevated inflation environment.
- There are growing concerns with regards to the UK economy. A relatively hawkish Bank of England and a chancellor of the exchequer eager to return to fiscal rectitude by raising taxes make for a complicated outlook given the existing Brexit and COVID-19 challenges. Consumer confidence has been falling precipitously. Despite this, we retain a Market Weight recommendation on UK equities, which continue to stand out given their low valuations with the FTSE All-Share Index trading close to a record discount to global developed markets. Given the difficult domestic background, we have a bias towards internationally oriented UK-based companies. We prefer the Financials and Health Care sectors in particular.

## Asia Pacific

Jasmine Duan – Hong Kong

jasmine.duan@rbc.com

Nicholas Gwee, CFA – Singapore

nicholas.gwee@rbc.com

- China underperformed among emerging market equities in 2021. We believe the regulatory overhang could still lead to market volatility in 2022. However, a large part of the unwinding of Chinese equities is likely over and we think there could be some trading opportunities in 2022. Valuations are undemanding, we expect macro policy to become moderately growth-supportive, and there may be some policy fine-tuning in key industries, i.e., housing policies. Overall, we prefer China A-shares within the broad China equity space due to their lower exposure to growth stocks and tech in particular, which is in the crosshairs of regulators. We believe tension between the U.S. and China is still a risk that investors should closely monitor.
- In Japan, we expect private consumption to rebound and the recovery to extend into the first half of 2022. With new COVID-19 cases declining, the government plans to resume travel and dining-out subsidies. Meanwhile, wage growth has been encouraging. While production and exports remain weak, manufacturers expect that the gradual easing of bottlenecks will lead to a strong rebound. With the Liberal Democratic Party maintaining its “absolute stable majority” in the lower house of parliament, we expect attention to turn toward potential additional economic stimulus. We are positive on Japanese equities for the near term given these supporting factors and reasonable valuations. We are cautious on the medium- to longer-term outlook as political risks remain.

## 2022 currencies forecasts

| Currencies        | Rate  |
|-------------------|-------|
| U.S. Dollar Index | 97.03 |
| EUR/USD           | 1.14  |
| USD/CAD           | 1.27  |
| GBP/USD           | 1.23  |
| USD/JPY           | 117   |

Source - RBC Capital Markets; data as of 11/4/21

## Currencies

Nicolas Wong, CFA – Singapore

nicolas.wong@rbc.com

**USD – Fed rate hike expected.** The Federal Reserve recently announced plans to begin tapering its asset purchases, a process which if kept at a consistent pace would see quantitative easing end in the summer of 2022. We expect moderate U.S. dollar strength in 2022, with the first interest rate hike currently priced in at the Fed's July or September policy meeting. Labor market and inflation data will likely dictate the pace at which the Fed adjusts monetary policy going forward.

**EUR – ECB to stay dovish.** The European Central Bank is expected to replace its current Pandemic Emergency Purchase Programme (PEPP), which is ending in March, with a different form of asset purchases, keeping it amongst the most dovish of central banks. Increasing uncertainty ahead of the French presidential election in April is a potential headwind for the euro.

**CAD – Market too hawkish on rate hikes.** At its October meeting, a hawkish Bank of Canada (BoC) brought forward the timing of its first potential rate hike from the second half of 2022 to April 2022. While the market has priced in about five rate hikes for 2022, RBC Capital Markets' economists believe this pace is too aggressive. A dialing back of rate hike expectations could lead to mild loonie weakness in 2022.

**GBP – Weaker despite widely expected BoE hikes.** A surge in UK inflation could force the Bank of England (BoE) to start raising rates, but similar to the BoC, we think markets have overpriced the extent to which the BoE will tighten in 2022.

**JPY – USD/JPY to rally with Fed hikes.** With the Fed likely to start to normalize rates in 2022 and the Bank of Japan in no hurry to adjust monetary policy, we believe interest rate differentials between the U.S. and Japan will be the main driver for a higher USD/JPY.

## Commodities

Richard Tan, CFA – Toronto

richard.tan@rbc.com

## 2022 commodities forecasts

| Commodities            | Price   |
|------------------------|---------|
| Oil (WTI \$/bbl)       | \$81.00 |
| Natural gas (\$/mmBtu) | \$3.85  |
| Copper (\$/lb)         | \$3.75  |
| Gold (\$/oz)           | \$1,696 |
| Soybeans (\$/bu)       | \$12.71 |
| Wheat (\$/bu)          | \$8.32  |

Source - RBC Capital Markets forecasts for oil, natural gas, copper, and gold), Bloomberg consensus forecasts (soybeans and wheat); data as of 11/19/21

**Crude oil – Bullish signs.** RBC Capital Markets' oil strategist anticipates WTI prices will remain elevated in 2022 and have further to run driven by the combination of tight supply and strengthening demand. Despite the 57% rally year to date, RBC Capital Markets believes oil is in the early stages of a multiyear bull cycle. Furthermore, OPEC+ reiterated its commitment to gradually increase production, which lowers geopolitical risk, in our view.

**Natural gas – Multiyear highs.** Natural gas prices are trading at multiyear highs driven in part by U.S. production outages, low European stockpiles, and strong liquefied natural gas demand. Furthermore, exploration and production companies have generally committed to capital discipline, which is translating into lower supply growth. Prices are currently trending above RBC Capital Markets' 2022 high scenario forecast of \$4.89/mmBtu.

**Copper – Green support.** While copper has pared its gains amid slowing Chinese demand, we think the ramp-up in green initiatives should allow copper prices to stay elevated in 2022. RBC Capital Markets expects supply deficits to persist until 2023.

**Gold – Downside risks.** Gold has been a relative underperformer in 2021 amid the global economic rebound, although prices have stabilized around \$1,800 with the help of U.S. dollar weakness and higher inflation. RBC Capital Markets believes further economic momentum and tighter monetary policies expose gold to downside risks in 2022.

**Soybeans – Record production.** North American production is on pace for a record year as soaring fertilizer prices have incentivized farmers to grow more soybeans relative to corn or wheat. Soybean prices are down approximately 4% year to date and will likely require a rebound in Chinese demand before prices can pick up in 2022.

**Wheat – Firming support.** The U.S. Department of Agriculture is projecting continued strength in international exports, offset slightly by lower domestic consumption. It also anticipates reduced North American production and a drawdown in global inventories. This should provide support for wheat prices.

## Research resources

This document is produced by the Global Portfolio Advisory Committee within RBC Wealth Management's Portfolio Advisory Group. The RBC Wealth Management Portfolio Advisory Group provides support related to asset allocation and portfolio construction for the firm's investment advisors / financial advisors who are engaged in assembling portfolios incorporating individual marketable securities.

The Global Portfolio Advisory Committee leverages the broad market outlook as developed by the RBC Investment

Strategy Committee (RISC), providing additional tactical and thematic support utilizing research from the RISC, RBC Capital Markets, and third-party resources.

The RISC consists of senior investment professionals drawn from individual, client-focused business units within RBC, including the Portfolio Advisory Group. The RISC builds a broad global investment outlook and develops specific guidelines that can be used to manage portfolios. The RISC is chaired by Daniel Chornous, CFA, Chief Investment Officer of RBC Global Asset Management Inc.

---

### Global Portfolio Advisory Committee members

**Jim Allworth** – Co-chair  
Investment Strategist, RBC Dominion Securities Inc.

**Kelly Bogdanova** – Co-chair  
Portfolio Analyst, RBC Wealth Management Portfolio Advisory Group U.S., RBC Capital Markets, LLC

**Frédérique Carrier** – Co-chair  
Managing Director & Head of Investment Strategy  
RBC Europe Limited

**Mark Bayko, CFA** – Head, Portfolio Management,  
RBC Dominion Securities Inc.

**Rufaro Chiriseri, CFA** – Head of Fixed Income – British  
Isles, RBC Europe Limited

**Janet Engels** – Head, Portfolio Advisory Group U.S.,  
RBC Wealth Management, RBC Capital Markets, LLC

**Thomas Garretson, CFA** – Fixed Income Senior Portfolio  
Strategist, RBC Wealth Management Portfolio Advisory  
Group, RBC Capital Markets, LLC

**Ryan Harder, CFA** – Fixed Income Portfolio Advisor,  
Portfolio Advisory Group, RBC Dominion Securities Inc.

**Patrick McAllister, CFA** – Manager, Equity Advisory &  
Portfolio Management, Portfolio Advisory Group, RBC  
Dominion Securities Inc.

**Mikhail Pasic, CFA** – Vice President, Alternative  
Investments, RBC Dominion Securities Inc.

**Alan Robinson** – Portfolio Analyst, RBC Wealth  
Management Portfolio Advisory Group – U.S. Equities,  
RBC Capital Markets, LLC

**Michael Schuette, CFA** – Multi-Asset Portfolio Strategist,  
RBC Wealth Management Portfolio Advisory Group – U.S.,  
RBC Capital Markets, LLC

**David Storm, CFA, CAIA** – Chief Investment Officer, BI &  
Asia, RBC Europe Limited

**Tat Wai Toh** – Head of Portfolio Management, BI & Asia,  
Royal Bank of Canada, Singapore Branch

**Joseph Wu, CFA** – Portfolio Manager, Multi-Asset Strategy,  
RBC Dominion Securities Inc.

---

### Additional Global Insight authors

**Jasmine Duan** – Investment Strategist, RBC Investment  
Services (Asia) Limited

**Nicholas Gwee, CFA** – Portfolio Manager, Royal Bank of  
Canada, Singapore Branch

**Calvin Ng** – Head of Fixed Income Advisory Hong Kong,  
RBC Wealth Management Hong Kong, RBC Investment  
Services (Asia) Limited

**Sunny Singh, CFA** – Canadian Equities Portfolio Advisor,  
RBC Wealth Management Portfolio Advisory Group –  
Equities, RBC Dominion Securities Inc.

**Chun-Him Tam** – Head of UHNW Solutions & Head of Fixed  
Income Asia, Royal Bank of Canada, Singapore Branch

**Richard Tan, CFA** – Canadian Equities Portfolio Advisor,  
RBC Wealth Management Portfolio Advisory Group –  
Equities, RBC Dominion Securities Inc.

**Nicolas Wong, CFA** – Head of FX, Asia & BI, Royal Bank of  
Canada, Singapore Branch

# Required disclosures

## Analyst Certification

All of the views expressed in this report accurately reflect the personal views of the responsible analyst(s) about any and all of the subject securities or issuers. No part of the compensation of the responsible analyst(s) named herein is, or will be, directly or indirectly, related to the specific recommendations or views expressed by the responsible analyst(s) in this report.

## Important Disclosures

In the U.S., RBC Wealth Management operates as a division of RBC Capital Markets, LLC. In Canada, RBC Wealth Management includes, without limitation, RBC Dominion Securities Inc., which is a foreign affiliate of RBC Capital Markets, LLC. This report has been prepared by RBC Capital Markets, LLC which is an indirect wholly-owned subsidiary of the Royal Bank of Canada and, as such, is a related issuer of Royal Bank of Canada.

One or more research analysts involved in the preparation of this report (i) may not be registered/qualified as research analysts with the NYSE and/or FINRA and (ii) may not be associated persons of the RBC Wealth Management and therefore may not be subject to FINRA Rule 2241 restrictions on communications with a subject company, public appearances and trading securities held by a research analyst account.

In the event that this is a compendium report (covers six or more companies), RBC Wealth Management may choose to provide important disclosure information by reference. To access current disclosures, clients should refer to <https://www.rbccm.com/GLDisclosure/PublicWeb/DisclosureLookup.aspx?EntityID=2> to view disclosures regarding RBC Wealth Management and its affiliated firms. Such information is also available upon request to RBC Wealth Management Publishing, 60 South Sixth St, Minneapolis, MN 55402.

References to a Recommended List in the recommendation history chart may include one or more recommended lists or model portfolios maintained by RBC Wealth Management or one of its affiliates. RBC Wealth Management recommended lists include the Guided Portfolio: Prime Income (RL 6), the Guided Portfolio: Dividend Growth (RL 8), the Guided Portfolio: ADR (RL 10), and the Guided Portfolio: All Cap Growth (RL 12). RBC Capital Markets recommended lists include the Strategy Focus List and the Fundamental Equity Weightings (FEW) portfolios. The abbreviation 'RL On' means the date a security was placed on a Recommended List. The abbreviation 'RL Off' means the date a security was removed from a Recommended List.

## Distribution of Ratings

For the purpose of ratings distributions, regulatory rules require member firms to assign ratings to one of three rating categories – Buy, Hold/Neutral, or Sell – regardless of a firm's own rating categories. Although RBC Capital Markets' ratings of Outperform (O), Sector Perform (SP), and Underperform (U) most closely correspond to Buy, Hold/Neutral and Sell, respectively, the meanings are not the same because our ratings are determined on a relative basis.

## Explanation of RBC Capital Markets, LLC Equity Rating System

An analyst's "sector" is the universe of companies for which the analyst provides research coverage. Accordingly, the rating assigned to a particular stock represents solely the analyst's view of how that stock will perform over the next 12 months relative to the analyst's sector average.

## Distribution of ratings – RBC Capital Markets, LLC Equity Research As of September 30, 2021

| Rating                | Count | Percent | Investment Banking Services Provided During Past 12 Months |         |
|-----------------------|-------|---------|--|---------|
|                       |       |         | Count  | Percent |
| Buy [Outperform]      | 800   | 56.58   | 341  | 42.62   |
| Hold [Sector Perform] | 562   | 39.75   | 172  | 30.60   |
| Sell [Underperform]   | 52    | 3.68    | 3  | 5.77    |

**Outperform (O):** Expected to materially outperform sector average over 12 months. **Sector Perform (SP):** Returns expected to be in line with sector average over 12 months. **Underperform (U):** Returns expected to be materially below sector average over 12 months. **Restricted (R):** RBC policy precludes certain types of communications, including an investment recommendation, when RBC is acting as an advisor in certain merger or other strategic transactions and in certain other circumstances. **Not Rated (NR):** The rating, price targets and estimates have been removed due to applicable legal, regulatory or policy constraints which may include when RBC Capital Markets is acting in an advisory capacity involving the company.

As of March 31, 2020, RBC Capital Markets discontinued its Top Pick rating. Top Pick rated securities represented an analyst's best idea in the sector; expected to provide significant absolute returns over 12 months with a favorable risk-reward ratio. Top Pick rated securities have been reassigned to our Outperform rated securities category, which are securities expected to materially outperform sector average over 12 months.

**Risk Rating:** The Speculative risk rating reflects a security's lower level of financial or operating predictability, illiquid share trading volumes, high balance sheet leverage, or limited operating history that result in a higher expectation of financial and/or stock price volatility.

### Valuation and Risks to Rating and Price Target

When RBC Wealth Management assigns a value to a company in a research report, FINRA Rules and NYSE Rules (as incorporated into the FINRA Rulebook) require that the basis for the valuation and the impediments to obtaining that valuation be described. Where applicable, this information is included in the text of our research in the sections entitled “Valuation” and “Risks to Rating and Price Target”, respectively.

The analyst(s) responsible for preparing this research report have received (or will receive) compensation that is based upon various factors, including total revenues of RBC Capital Markets, LLC, and its affiliates, a portion of which are or have been generated by investment banking activities of RBC Capital Markets, LLC and its affiliates.

### Other Disclosures

Prepared with the assistance of our national research sources. RBC Wealth Management prepared this report and takes sole responsibility for its content and distribution. The content may have been based, at least in part, on material provided by our third-party correspondent research services. Our third-party correspondent has given RBC Wealth Management general permission to use its research reports as source materials, but has not reviewed or approved this report, nor has it been informed of its publication. Our third-party correspondent may from time to time have long or short positions in, effect transactions in, and make markets in securities referred to herein. Our third-party correspondent may from time to time perform investment banking or other services for, or solicit investment banking or other business from, any company mentioned in this report.

RBC Wealth Management endeavors to make all reasonable efforts to provide research simultaneously to all eligible clients, having regard to local time zones in overseas jurisdictions. In certain investment advisory accounts, RBC Wealth Management or a designated third party will act as overlay manager for our clients and will initiate transactions in the securities referenced herein for those accounts upon receipt of this report. These transactions may occur before or after your receipt of this report and may have a short-term impact on the market price of the securities in which transactions occur. RBC Wealth Management research is posted to our proprietary Web sites to ensure eligible clients receive coverage initiations and changes in rating, targets, and opinions in a timely manner. Additional distribution may be done by sales personnel via e-mail, fax, or regular mail. Clients may also receive our research via third-party vendors. Please contact your RBC Wealth Management Financial Advisor for more information regarding RBC Wealth Management research.

**Conflicts Disclosure:** RBC Wealth Management is registered with the Securities and Exchange Commission as a broker/dealer and an investment adviser, offering both brokerage and investment advisory services. RBC Wealth

Management’s Policy for Managing Conflicts of Interest in Relation to Investment Research is available from us on our website at <https://www.rbccm.com/GLDisclosure/PublicWeb/DisclosureLookup.aspx?EntityID=2>. Conflicts of interests related to our investment advisory business can be found in Part 2A Appendix 1 of the Firm’s Form ADV or the RBC Advisory Programs Disclosure Document. Copies of any of these documents are available upon request through your Financial Advisor. We reserve the right to amend or supplement this policy, Part 2A Appendix 1 of the Form ADV, or the RBC Advisory Programs Disclosure Document at any time.

The authors are employed by one of the following entities: RBC Wealth Management USA, a division of RBC Capital Markets, LLC, a securities broker-dealer with principal offices located in Minnesota and New York, USA; RBC Dominion Securities Inc., a securities broker-dealer with principal offices located in Toronto, Canada; RBC Investment Services (Asia) Limited, a subsidiary of RBC Dominion Securities Inc., a securities broker-dealer with principal offices located in Hong Kong, China; Royal Bank of Canada, Singapore Branch, a licensed wholesale bank with its principal office located in Singapore; and RBC Europe Limited, a licensed bank with principal offices located in London, United Kingdom.

### Third-party Disclaimers

The Global Industry Classification Standard (“GICS”) was developed by and is the exclusive property and a service mark of MSCI Inc. (“MSCI”) and Standard & Poor’s Financial Services LLC (“S&P”) and is licensed for use by RBC. Neither MSCI, S&P, nor any other party involved in making or compiling the GICS or any GICS classifications makes any express or implied warranties or representations with respect to such standard or classification (or the results to be obtained by the use thereof), and all such parties hereby expressly disclaim all warranties of originality, accuracy, completeness, merchantability and fitness for a particular purpose with respect to any of such standard or classification. Without limiting any of the foregoing, in no event shall MSCI, S&P, any of their affiliates or any third party involved in making or compiling the GICS or any GICS classifications have any liability for any direct, indirect, special, punitive, consequential or any other damages (including lost profits) even if notified of the possibility of such damages.

### Disclaimer

The information contained in this report has been compiled by RBC Wealth Management, a division of RBC Capital Markets, LLC, from sources believed to be reliable, but no representation or warranty, express or implied, is made by Royal Bank of Canada, RBC Wealth Management, its affiliates or any other person as to its accuracy, completeness or correctness. All opinions and estimates contained in this report constitute RBC Wealth Management’s judgment as of the date of this report, are subject to change without notice and are provided in good faith but without legal responsibility. Past performance is not a guide to future performance, future returns are not guaranteed, and a loss of original capital may occur. Every province in Canada, state in the U.S., and most countries throughout the world have their own laws regulating the types of securities and other investment products which may be offered to their residents, as well as the process for doing so. As a result, the securities discussed in this report may not be eligible for sale in some jurisdictions. This report is not, and under no circumstances should be construed as, a solicitation to act as securities broker or dealer in any jurisdiction by any person or company that is not

legally permitted to carry on the business of a securities broker or dealer in that jurisdiction. Nothing in this report constitutes legal, accounting or tax advice or individually tailored investment advice. This material is prepared for general circulation to clients, including clients who are affiliates of Royal Bank of Canada, and does not have regard to the particular circumstances or needs of any specific person who may read it. The investments or services contained in this report may not be suitable for you and it is recommended that you consult an independent investment advisor if you are in doubt about the suitability of such investments or services. To the full extent permitted by law neither Royal Bank of Canada nor any of its affiliates, nor any other person, accepts any liability whatsoever for any direct, indirect or consequential loss arising from, or in connection with, any use of this report or the information contained herein. No matter contained in this document may be reproduced or copied by any means without the prior written consent of Royal Bank of Canada in each instance. In the U.S., RBC Wealth Management operates as a division of RBC Capital Markets, LLC. In Canada, RBC Wealth Management includes, without limitation, RBC Dominion Securities Inc., which is a foreign affiliate of RBC Capital Markets, LLC. This report has been prepared by RBC Capital Markets, LLC. Additional information is available upon request.

**To U.S. Residents:** This publication has been approved by RBC Capital Markets, LLC, Member NYSE/FINRA/SIPC, which is a U.S. registered broker-dealer and which accepts responsibility for this report and its dissemination in the United States. RBC Capital Markets, LLC, is an indirect wholly-owned subsidiary of the Royal Bank of Canada and, as such, is a related issuer of Royal Bank of Canada. Any U.S. recipient of this report that is not a registered broker-dealer or a bank acting in a broker or dealer capacity and that wishes further information regarding, or to effect any transaction in, any of the securities discussed in this report, should contact and place orders with RBC Capital Markets, LLC. International investing involves risks not typically associated with U.S. investing, including currency fluctuation, foreign taxation, political instability and different accounting standards.

**To Canadian Residents:** This publication has been approved by RBC Dominion Securities Inc. RBC Dominion Securities Inc.\* and Royal Bank of Canada are separate corporate entities which are affiliated. \* Member Canadian Investor Protection Fund. ® Registered

trademark of Royal Bank of Canada. Used under license. RBC Wealth Management is a registered trademark of Royal Bank of Canada. Used under license.

**RBC Wealth Management (British Isles):** This publication is distributed by RBC Europe Limited and Royal Bank of Canada (Channel Islands) Limited. RBC Europe Limited is authorised by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority (FCA registration number: 124543). Registered office: 100 Bishopsgate, London, EC2N 4AA, UK. Royal Bank of Canada (Channel Islands) Limited is regulated by the Jersey Financial Services Commission in the conduct of investment business in Jersey. Registered office: Gaspé House, 66-72 Esplanade, St Helier, Jersey JE2 3QT, Channel Islands.

**To Hong Kong Residents:** This publication is distributed in Hong Kong by Royal Bank of Canada, Hong Kong Branch which is regulated by the Hong Kong Monetary Authority and the Securities and Futures Commission ('SFC'), and RBC Investment Services (Asia) Limited, which is regulated by the SFC.

**To Singapore Residents:** This publication is distributed in Singapore by the Royal Bank of Canada, Singapore Branch, a registered entity licensed by the Monetary Authority of Singapore. This material has been prepared for general circulation and does not take into account the objectives, financial situation, or needs of any recipient. You are advised to seek independent advice from a financial adviser before purchasing any product. If you do not obtain independent advice, you should consider whether the product is suitable for you. Past performance is not indicative of future performance. If you have any questions related to this publication, please contact the Royal Bank of Canada, Singapore Branch. Royal Bank of Canada, Singapore Branch accepts responsibility for this report and its dissemination in Singapore.

©2021 RBC Capital Markets, LLC – Member NYSE/FINRA/SIPC  
 ©2021 RBC Dominion Securities Inc. – Member Canadian Investor Protection Fund  
 ©2021 RBC Europe Limited  
 ©2021 Royal Bank of Canada  
 All rights reserved  
 RBC1524



Wealth  
Management



Wealth  
Management