GLOBAL Insight

Perspectives from the Global Portfolio Advisory Committee

June 2022

An unusual economic cycle shifts gears

We examine the main sticking points for the U.S. and other major economies, including inflation, and what it all means for the outlook for equities.

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GLOBAL

Insight

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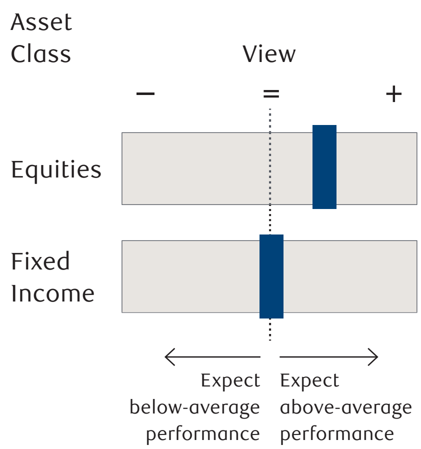

(+/=/–) represents the Global Portfolio Advisory Committee's (GPAC) view over a 12-month investment time horizon.

+ Overweight implies the potential for better-than-average performance for the asset class or for the region relative to other asset classes or regions.

= Market Weight implies the potential for average performance for the asset class or for the region relative to other asset classes or regions.

– Underweight implies the potential for below-average performance for the asset class or for the region relative to other asset classes or regions.

Source - RBC Wealth Management

EQUITIES

- High inflation, ongoing supply chain problems, and concerns about economic growth—along with uncertainties about central banks' abilities to effectively right the ship—continue to generate equity market volatility. After the S&P 500 declined almost 20% from its peak in early January through mid-May, the index recovered some of its lost ground, and other markets bounced as well. We think volatility could persist for months, but any further downside will be primarily determined by whether inflation remains "sticky" or signs develop that the U.S. economy is slipping into recession.
- The unique global economic imbalances, which are well outside the scope of a normal business cycle, put major economies' consensus growth estimates at risk of downward revisions. The UK and EU face the greatest challenges, in our view. We think the U.S. and Canadian economies are better prepared and better positioned to cope with the headwinds, so their GDP and earnings growth estimates should remain in positive territory. Because the direction of stock markets typically aligns with profit trends over time, a further expansion in U.S. and Canadian earnings in coming quarters should provide some degree of fundamental support for share prices. Importantly, U.S. equity valuations are no longer stretched, and valuations of other markets are undemanding. We suggest a modest Overweight position in equities.

FIXED INCOME

- Government bond yields appear to have reached something of a plateau in recent months, as the yield on the benchmark 10-year Treasury note touched as high as 3.20% in May after opening the month at 2.94%, before settling at 2.84%. That's the first monthly decline in the 10-year since November 2021. Despite ongoing market volatility, the Fed is likely to again raise rates by another 50 basis points (bps) when it meets on June 14–15. That would bring the policy rate to a range of 1.00% to 1.50% and we continue to expect another 50 bps rate hike in July as well. However, while Fed rate hikes continue, we maintain that the rest of the market has already nearly fully priced the rate hike cycle, with the fed funds rate seen peaking at 3.00%, according to fed funds futures data, in line with where the bulk of the Treasury yield curve is currently trading.
- Not to be outdone, the Bank of Canada followed suit with a second consecutive 50 bps rate hike in early June, while signaling that policy rates may have to go beyond 3.0% in order to keep inflation expectations anchored.
- The net result is that North American benchmark 10-year sovereign yields have edged higher to around 3.0% as the bulk of central bank rate hikes are already priced in, while in Europe the German 10-year has taken another step higher to 1.23%, the highest level since 2014, as the European Central Bank works to play catch-up to other global central banks.
- With long-term yields remaining at or near our target levels around 3.0%, we favor a duration positioning with a modestly long profile, though we compensate that greater sensitivity to changes in interest rates with an Underweight exposure to government bonds as we believe 12-month recession risks remain low.
- We maintain our Market Weight in global fixed income, with a Market Weight allocation to corporate credit.

MONTHLY
Focus

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An unusual economic cycle shifts gears

Equity markets in recent months have begun to account for major shifts in economic activity. Still, over the near term markets will have to contend with more stubborn challenges that could dull economic growth. We examine the main sticking points for the U.S. and other major economies, including inflation, and what it all means for the outlook for equities.

Key points

- **Households on both sides of the Atlantic are changing their spending patterns due to high inflation and higher borrowing rates.**
- **While inflation seems likely to ease somewhat in the second half of the year in North America, we think pressures associated with it will linger, and supply chain problems are unlikely to end anytime soon.**
- **Consensus forecasts of GDP and corporate earnings growth for 2022 and 2023 could be too high—although estimates for the U.S. and Canada should remain in positive territory.**
- **If a U.S. recession is avoided, as our economic indicators are suggesting, we think the magnitude of equity market downside and the duration of further volatility will be limited.**

Amid the global equity market turbulence and the S&P 500's 13.3 percent year-to-date decline, there are signs major economies are shifting gears.

With U.S. gasoline and diesel prices shooting up further in May, utility rates surging in the UK and Continental Europe, and food prices at lofty levels just about everywhere, households on both sides of the Atlantic are changing spending priorities and economic activity in Europe is starting to roll over. On top of this, China's economy has slowed markedly due to its COVID-19 lockdowns, impacting a number of industries and global supply chains.

All of this puts 2022 and 2023 consensus GDP and corporate earnings growth estimates at risk of downward revisions—although we think estimates for the U.S. and Canada will remain in positive territory.

The good news is that the U.S. and Canadian economies have entered this dicey period in better shape than other developed economies. Both were strong before the shifts began to take hold, so they have more wiggle room to absorb additional central bank rate hikes. The main pillars of the U.S. economy—consumer spending, employment, and private investments—are holding firm. Six of our seven U.S. recession leading indicators remain in expansion mode, signaling that as yet there is no U.S. recession on the horizon. However, we can't take it for granted the six indicators will all stay as unequivocally positive through this year and into next.

Equity markets have largely factored in much of this period's unique economic challenges. We think any further downside will be primarily

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determined by whether signs develop that the U.S. economy is slipping into recession. So far, that's not happening.

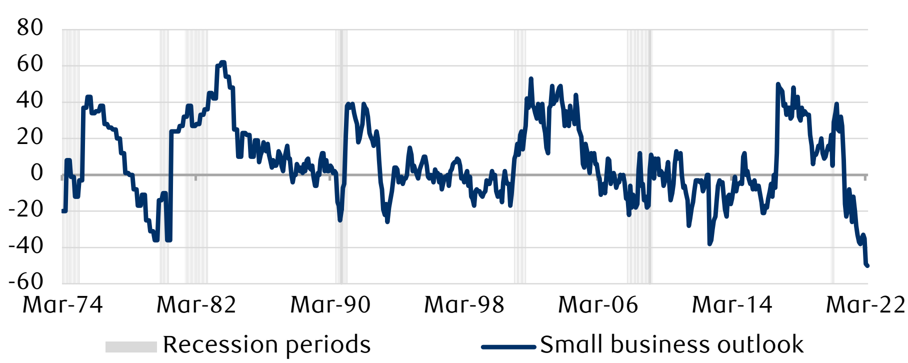
Disrupted recovery

Households on both sides of the Atlantic are changing their spending patterns due to high inflation and higher borrowing rates—allocating more for the things they need (food, gasoline/petrol, utilities) and less for the things they want, or holding back because of purchases already made during the COVID-19 stimulus-generated buying spree (durable goods, autos, other big-ticket items).

This is starting to impact economic data and corporate trends, and has hit business sentiment surveys hard in the world's largest economy:

- **U.S. new home sales dropped 16.6 percent in April** compared to March, the fourth straight monthly decline. While low inventories were a factor, we think higher mortgage rates are also biting.
- **U.S. regional business and manufacturing activity fell short** of consensus forecasts in May.
- **Walmart and Target reported disappointing earnings and profit margins** in Q1 and lowered estimates for the full year. The most pressing problems for these very large American retailers: an abrupt shift in customer spending away from household goods and electronics toward staples items, such as groceries, along with bloated goods inventories and high freight and warehouse costs due to inflation. Multinational companies in very different industries, such as Deere (agriculture equipment) and Applied Materials (semiconductor equipment), also recently warned about a more challenging demand environment.
- **U.S. CEO confidence has declined dramatically**. According to the Conference Board's survey, sentiment has retreated to 42 points in Q2 2022 from over 80 in mid-2021 (any reading below 50 means there are more negative opinions than positive ones).
- **The proportion of U.S. small business owners who expect better overall business conditions in the next six months fell to the lowest level since the closely watched survey began being conducted in 1974**.

U.S. small business outlook for general business conditions has fallen to an all-time low



Note: Diffusion index based on survey data of small business owners by the National Federation of Independent Business (NFIB)

Source - RBC Wealth Management, Bloomberg; monthly data through April 2022, the most recent survey

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These and other developments suggest consensus U.S. GDP forecasts of 2.6 percent and 2.0 percent growth for 2022 and 2023, respectively, may be too high.

But while estimates are likely to come down, they should remain in positive territory. The unemployment rate is very low. The number of unfilled jobs remains very elevated. Household balance sheets appear to be in good shape and consumers remain in the game. Meanwhile, delinquency rates for all types of business and consumer loans, including credit cards, are at extremely low levels.

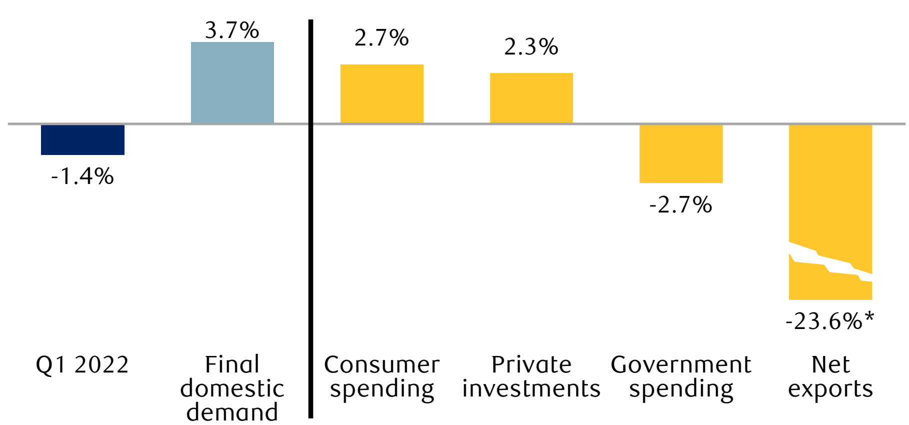
Most of the weakness that seems to be developing is on the goods-producing side of the economy where the stay-at-home spending spree of the past two years pulled forward a lot of future demand, especially for durable goods, leaving a demand “valley” for such goods that will probably extend well into next year and likely necessitate the liquidation of excess inventories at discount prices along the way. On the other hand, the much larger services component of GDP (more than 60 percent) carries no inventories and is enjoying the fulfillment of the pent-up consumer demand that built over the long COVID-19 shutdown/restrictions.

Much of the elevated concern that has produced headlines of late was triggered by the reported 1.4 percent decline in Q1 U.S. GDP. However, most of that drop resulted from an unusual surge in imports due to post-COVID-related factors and to a pronounced slowdown in inventory building after the outsized surge in the same category produced an exaggerated bulge in GDP the prior quarter. Final domestic demand in Q1—the total demand of goods and services in the country—grew at a strong 3.7 percent rate. The all-important consumer spending and private investments categories of GDP both climbed more than two percent.

Thus far, economic data indicates these key components of GDP are growing again in the current quarter. The Atlanta Fed’s GDPNow indicator, tracking the main contributions to GDP so far, suggests a bounce in Q2 GDP growth to a below-average 1.3 percent rate, although much of the quarter is yet to be heard from.

U.S. Real GDP: Q1 2022 breakdown of major components

Quarter-over-quarter annualized data



*Magnitude of the decline for net exports (exports minus imports) is truncated so as to not distort the other data in the chart.

Source - National research correspondent, Bureau of Economic Analysis, Bloomberg

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Consumed by inflation

Two of the main sticking points for the U.S. and other major economies are doggedly persistent inflation and supply chain bottlenecks, especially given they have both been exacerbated lately by China's renewed COVID-19 lockdowns, the crisis in Ukraine, and sweeping Western sanctions on Russia that have added price premiums on a broad range of energy, agriculture, and industrial metals commodities.

Supply chain problems are unlikely to end anytime soon, which has made cost pressures more stubborn and postponed or prevented some business opportunities.

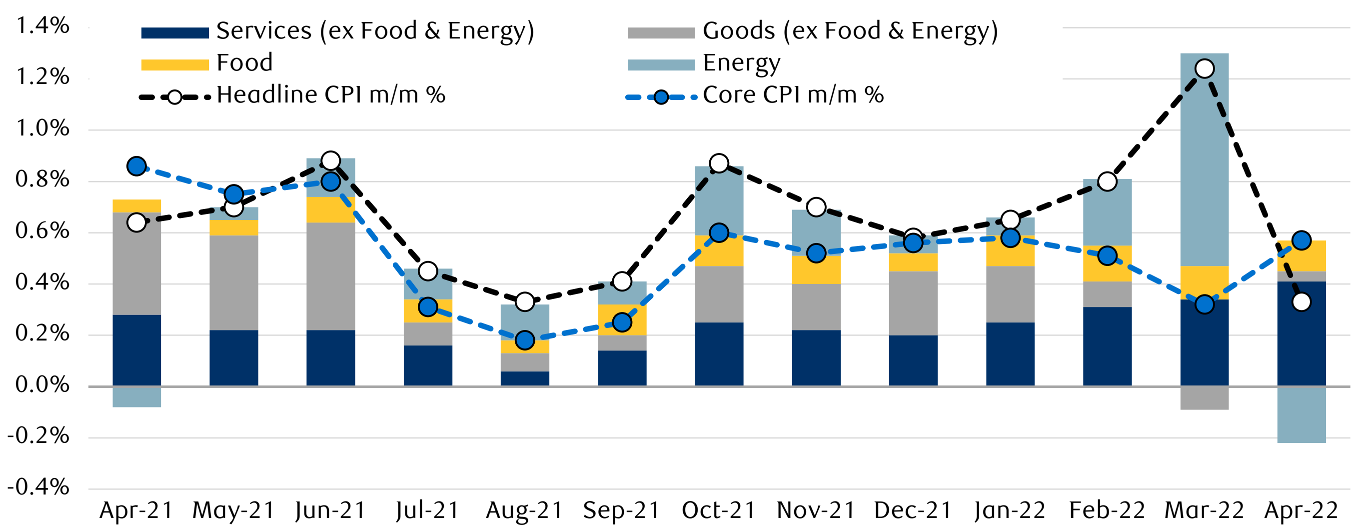
In early May, proprietary research by the RBC Capital Markets Digital Intelligence Strategy team stated: "Many market participants mistakenly thought that supply chains would be untangled by now. Global port congestion is worsening and becoming increasingly widespread. Container ships are queuing for longer periods, which is elongating supply chains. A ship stuck in a queue reduces the supply available for charter. This has a domino-like negative compounding effect across various markets. Freight prices remain elevated, marine fuel prices are increasing, as are insurance costs. The lifelines of global trade are becoming increasingly expensive."

While we don't see inflation headwinds diminishing by much over the near term, U.S. consumer price increases should moderate in the second half of this year.

With households now less willing or able to spend on goods and more focused on mitigating inflationary pressures on their balance sheets, RBC Capital Markets, LLC's Chief U.S. Economist Tom Porcelli expects there will be inflation relief in the important goods segment of the economy. It's telling that even though a number of U.S. retailers have cut goods prices recently, many still have bloated inventories. This will require a longer period of discounting or more price cutting. Porcelli thinks a pullback

Components of U.S. consumer inflation and overall inflation trends (month-over-month data)

Bars show the four components' percentage point contributions to the Consumer Price Index. Dotted lines show the % change of Headline CPI and Core CPI (excludes food and energy)



Source - RBC Wealth Management, Bloomberg; data through April 2022, the most recent report

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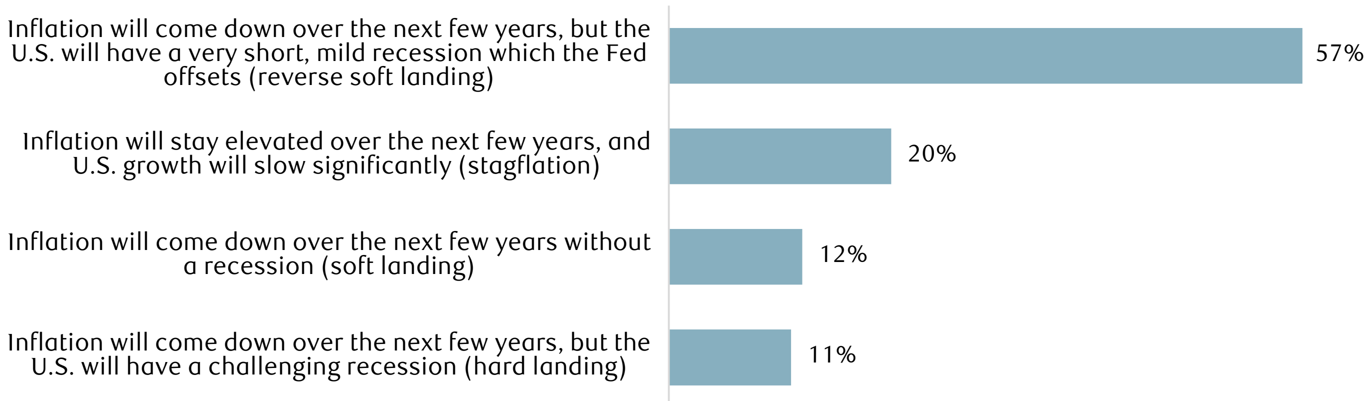
in goods inflation has the potential to create a less acute situation for inflation overall, and kick-start a decline in core consumer prices, which exclude food and energy.

Currently, just like market participants, U.S. CEOs are concerned about inflation and how the Fed's tightening cycle might impact the economy. The Conference Board's survey indicates that 57 percent of CEOs believe inflation will come down in the next few years but not before a very short, mild recession occurs. Another 20 percent believe stagflation will be the end result with inflation remaining elevated over the next few years amid slow economic growth. Only 12 percent expect a soft landing, and 11 percent anticipate a hard landing.

Survey question: The Federal Reserve is starting to tighten monetary policy. What do you expect to be the most likely outcome for the U.S. economy?

Conference Board's CEO Confidence Survey from Q2 2022



Source - Conference Board; survey results released 5/18/22

None of RBC's economists are forecasting a recession in the next 12 months, and they believe the Fed has scope to increase interest rates without pushing consumer activity and private investment into negative territory over a sustained period.

RBC Global Asset Management anticipates U.S. consumer inflation will recede somewhat in the second half of this year, with core inflation pulling back the most, helped along by a decline in goods prices. But overall inflation will likely remain "uncomfortably high" at year-end. It could take a few years to get back down to the Fed's two percent target inflation rate.

For the U.S., if this is just a "growth scare"—when there is a threat of recession, but the economy ultimately dodges one—and inflation begins to recede, the equity market could deliver worthwhile gains in the next 12 months.

Recent growth scares have produced declines in the range of the drawdown that the S&P 500 has already experienced. What's notable is that after the market bottomed in each of the four previous growth scares since 2010, the S&P 500 rallied by an average of almost 30 percent 12 months later.

Recessions, however, typically produce deeper and longer-lasting downturns. Surrounding 13 U.S. recessions since 1937, the S&P 500 declined

31.8 percent and the market took over a year to bottom, on average. On all but one occasion, the market troughed before the recession officially ended.

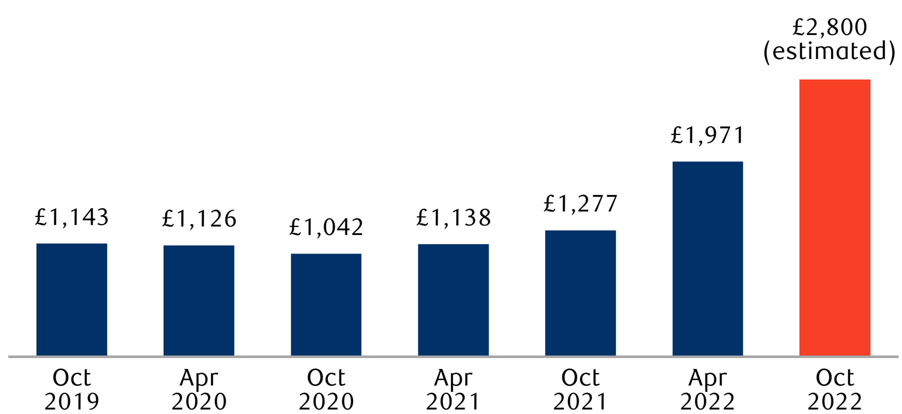
A mixed global economic bag

Outside the U.S., economic conditions are mixed. They're relatively better in Canada due to its high proportion of natural resources and benefits from commodity price premiums, but worse for Europe and the UK for the opposite effects, while China has its own challenges.

- **Canada is among the leading global producers of the energy, agriculture, and industrial metals commodities that are in short supply**. Commodity-producing countries are benefiting from positive balance of trade dynamics.
- "**Economic indicators in China have fallen significantly**, and difficulties in some aspects and to a certain extent are greater than when the epidemic hit us severely in 2020," Chinese Premier Li Keqiang said recently. This is primarily a consequence of strict lockdowns in major cities such as Shanghai that's associated with the country's zero-COVID policy. While Shanghai is now opening up, it's unclear if other major cities will get through this wave without strict lockdowns. China's government has announced new stimulus measures, including business tax cuts, in an attempt to counteract the slowdown.
- **Within the EU, industrial leaders continue to warn about the implications of the high cost of power and natural gas, and supply chain bottlenecks**. German industrial production is down 3.5 percent on a year-over-year basis. The German Institute for Economic Research found that 80.2 percent of domestic companies are struggling with a shortage of raw materials and supply chain constraints.
- **The UK may already be in recession**, and households are under pressure due to inflation. According to a recent Ipsos survey, 63 percent of people in Britain are fairly or very concerned about their ability to pay their bills—and not just soaring utility bills—over the next six months.

UK utilities bills have already jumped and seem set to leap even higher

UK annual energy price cap for natural gas and electric utilities for customers with variable bills



Source - Ofgem (UK Office of Gas and Electricity Markets); October 2022 amount is estimated by the regulator

We think more definitive signs of further slowing in the UK and EU will appear in coming months, even before all of the central bank rate hikes have taken effect, let alone have been fully absorbed.

In terms of equity prices, these markets are inexpensive on an absolute basis and on a relative basis compared to the U.S., even when adjusting for sector differences. Therefore, much of the economic weakness is likely already factored in. But there could be additional downside if European countries do indeed fall into recession.

Changing contours

Equity markets in recent months have begun to account for the downshift in economic activity. But investors are still having difficulty gauging just how long the unique inflation and supply chain pressures will last, the ability of central banks to effectively calibrate rate hike policies, and the ultimate impact on economic and corporate earnings growth.

Over the near term, we think markets will still have to contend with lingering inflation and supply chain concerns as well as the debate about whether central bank policies are too hawkish or not hawkish enough. Worries about an economic slowdown and recession will likely become more prominent, including among corporate management teams; this could affect their earnings and profit margin guidance and analysts' forward estimates.

If a U.S. growth scare scenario plays out and a recession is avoided, as our economic indicators are currently suggesting, we think the magnitude of equity market downside and the duration of further volatility will be limited.

MONTHLY
Focus

A full plate: Investing in food security

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Global food security, already severely challenged by climate change, has become even more precarious following Russia's invasion of Ukraine. Technological solutions will likely play an ever more important role in filling mouths despite increasingly difficult conditions. We discuss why food security matters now more than ever and areas where growth prospects are driven by this imperative.

Key points

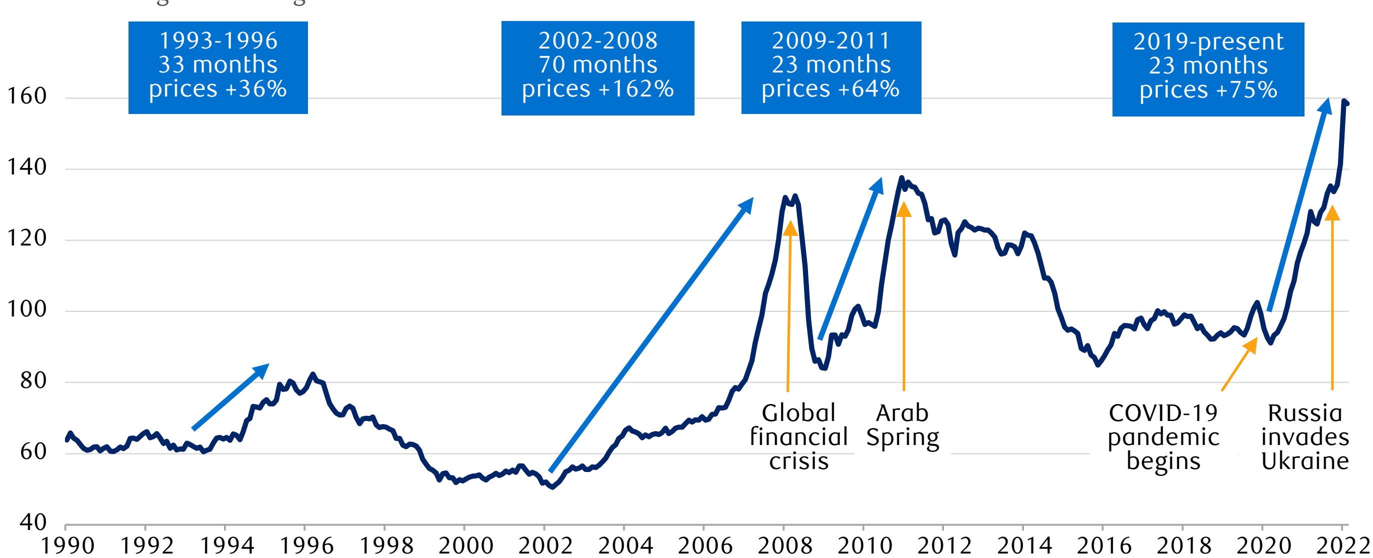
- **The raging war between Russia and Ukraine, two agricultural giants, has compounded the challenges of feeding a growing global population against the backdrop of increasingly unpredictable weather due to climate change and soil degradation resulting from unsustainable agricultural practices.**
- **Food prices, already pushed up by pandemic-induced labor shortages and higher energy prices, are set to climb further. Malnutrition and hunger, which plague developed and developing countries alike, can spark conflict or create political vulnerabilities.**
- **Improving food security has become a key government focus and the private sector has spotted an opportunity. We explore the key technological solutions that will likely play an increasingly important role in contributing to enhancing food security and highlight investable ideas with compelling growth prospects driven by this imperative.**

A precarious situation worsens

Food security was already precarious before the pandemic. The World Economic Forum (WEF) expects demand for food in 2050 will be 60 percent

Over the past three cycles, food prices doubled in just over three years

UN Food and Agriculture Organization's Food Price Index



Source - RBC Wealth Management, Bloomberg; monthly data through 4/30/22 greater than it is today, partly due to an increase in population, but mostly because of a shift toward more meat- and dairy-intensive diets as a significant portion of the global population is lifted out of poverty.

Pandemic-related labor shortages and Russia's invasion of Ukraine have aggravated the situation by both curtailing food supply and pushing up energy prices even further.

The UN Food and Agriculture Organization's (FAO) Food Price Index, which tracks developments in global agricultural commodity markets, reached 159 points in April 2022, eclipsing the previous record high of 138 recorded in 2011. In effect, the index suggests that food prices are now 75 percent above their pre-pandemic level.

The Russia-Ukraine war is upending global food supplies in several ways. Due to the invasion's timing, at the end of winter, planting and harvesting seasons have been severely disrupted. The FAO estimates that 20 percent to 30 percent of sunflower grains and corn will not be planted or harvested. Importantly, Russia has cut off much of Ukraine's Black Sea access, blocking its exports. Moreover, sanctions against Russia are restricting its own agricultural commodity exports.

Alarmed by the surge in prices, food protectionism is on the rise. More than 16 countries now impose restrictions on their food exports, up from three since the invasion, according to the International Food Policy Research Institute. Most recently, India, the world's second-largest wheat producer, banned exports of the commodity citing higher local wheat prices. Its priority is alleviating the hunger crisis facing a large swath of the domestic population.

The war has also aggravated the disruption in energy markets, driving prices higher and, in turn, pushing up food prices. About one-third of food costs are energy-related, according to our national research correspondent. Farm machinery requires fuel to function, while the manufacture of fertilizers is an energy-intensive process. Norwegian fertilizer company Yara temporarily curbed production in France and Italy due to high gas prices in March. High fertilizer prices may crimp agricultural output if farmers calculate that prices are too high and thus decide to reduce usage.

Moreover, transportation and packaging costs are being impacted, with 20 percent of fiber-based packaging and 35 percent of glass packaging costs influenced by energy prices, according to our national research correspondent.

Steeper costs of agricultural products affect other aspects of the food production chain. Corn, for instance, is a key ingredient in animal feed so livestock producers are being pressured as well.

Higher for longer

It is not unusual for food prices to be elevated for many months. The past three up-cycles lasted between 23 and 70 months. The current one, at 23 months, should be on the long side, in our view, given the pervasive supply headwinds. Moreover, energy prices are also likely to remain elevated for several months. Michael Tran, commodity strategist at RBC Capital Markets, LLC, expects oil prices to flirt with the $100/barrel (bbl) level until at least the end of 2023. His conclusion is based on an analysis of 22 of the world's most influential ports, suggesting that global port congestion is worsening and becoming more widespread, while freight prices remain high and marine fuel prices and insurance costs are on the rise.

Overall, the FAO forecasts that the international prices of the commodities with important Ukrainian and Russian export shares could climb by another eight percent to 22 percent over the period 2022–23 compared to their elevated 2021 levels.

Even when the Russia-Ukraine conflict is ultimately resolved and the pandemic finally ends, the need to feed a growing world population will likely contribute to keep food prices high given increasingly difficult growing conditions. According to the WEF, 40 percent of the world's landmass is currently arid, and rising temperatures will transform more of it into desert. It estimates that at current rates, the amount of food grown today will only feed half of the world population by 2050. Moreover, according to the Intergovernmental Panel on Climate Change, water stress will become more acute in many agricultural areas by 2025 due to greater water use and higher temperatures.

Geopolitically-driven food security

Some countries, such as China, strive for food security to free themselves from dependence on other nations and potential strategic vulnerabilities. To this end, the Chinese government has focused on bulking up its agricultural commodities reserves over the past five years. The country, home to just under 20 percent of the world's population, now holds about two-thirds of the world's corn reserves, and more than half of its rice and wheat, according to the U.S. Department of Agriculture (USDA).

China is also investing in agricultural research and development (R&D). At a recent visit to a seed laboratory in Sanya, Hainan province, Chinese President Xi Jinping said food security would only be achieved when seed resources were tightly held in Chinese hands. He aims for China's seed sources to be independent and controllable, and for technologies related to the seed industry to be self-reliant. Minister of Agriculture and Rural Affairs Tang Renjian reiterated this call, saying that "seeds are the 'computer chips' of agriculture, and cultivated land is the 'lifeblood' of food production."

The seed lab, covering 240,000 square meters, or some 45 football fields, was established for China to independently cultivate seed varieties with improved performance. It focuses on both R&D and industrialization. Located in the most southern point in China, Sanya's tropical climate enables crop varieties to breed up to three generations in a year.

The food security imperative

The impact of higher food prices will be felt unevenly around the world. Lower-income countries and communities where food can swallow up as much as two-thirds of household income will suffer most, according to the World Bank, particularly if they depend on grain imports, such as the Middle East and Africa. Egypt, for instance, receives 80 percent of its wheat imports from Ukraine and Russia.

Overall, the UN World Food Programme estimates that 690 million people worldwide go to bed on an empty stomach daily, with over 44 million on the brink of famine.

Food insecurity is not just the preserve of developing nations. Household budgets in developed economies also feel the pinch of higher food costs.

In the UK, the number of households cutting back on food or missing meals now affects one in seven homes as price rises are cutting into the nutrition quality for the country's poorest people, according to research by the Food Foundation, a UK charity, and the London School of Hygiene & Tropical Medicine. The Food Foundation expects this problem to become more acute.

In December 2021, a report by four large Canadian universities suggested a family of four in Canada could expect to spend an extra CA$966 on food in 2022, a five percent to seven percent increase over the previous year. With food prices increasing even more than expected due to the Kremlin's aggression toward Ukraine, we believe this estimate may prove too conservative, intensifying concerns about how food insecurity will affect lower-income Canadians.

Improving productivity

Unfortunately, there is no quick fix to ensure food security. Releasing grain reserves, when possible, can help in an emergency, but building resilience in a sustainable fashion is really what is needed, in our opinion.

Mitigating food insecurity usually requires focusing on localized measures depending on the challenges, such as enhancing the sustainable management of resources through efficient irrigation systems or soil conservation. Or the focus can be on improving distribution channels if those are determined to be the main impediment to food security. For instance, New York City's 10-year food plan (released in 2021) called for improving the integration of the Hunts Point Food Distribution Center, often dubbed "New York City's Refrigerator," with other food distribution channels in the city. The initiative aims to adapt Hunts Point, established more than 50 years ago, to the modern needs of New York City's food system.

The WEF suggests that improving food security requires agricultural sectors to become more productive. Forging public-private partnerships can also help, as can favoring crops produced locally.

The stakes couldn't be higher, in our view, as the risks of failing, beyond increased malnutrition and hunger, could spur further mass migration, loss of government support, and conflict. The Arab Spring uprisings in the Middle East in 2011 were partly triggered by spiraling food prices. Also, the poor showing in the UK of the ruling Conservative Party in the recent local elections was widely attributed to the cost of living crisis in the country, including crippling food inflation.

We believe AgriTech, or technological solutions that can increase crop yields while reducing environmental stress, has an important role to play in improving food security. We covered many of these solutions in our 2021 AgriTech report, including gene technology, precision farming, controlled environment farming, and supply chain efficiencies.

AgriTech developments

Gene technology: Gene editing vs. genetically modified organisms

As we explained in last year's AgriTech report, genetically modified (GM) crops have faced widespread consumer resistance over the years despite being higher-yielding, more tolerant of both drought and heavy rain, and displaying greater resilience to pests and diseases. That is partly because GM crops were designed to help farmers grow the crop with little thought about benefits to the end consumer.

More recently, gene editing technology has emphasized consumer needs. In 2021, Sicilian Rouge tomatoes went on sale in Japan. They are genetically edited to contain as much as five times the normal amount of GABA, a nutrient that promotes relaxation and lowers blood pressure. Sicilian Rouge tomatoes are one of the first genetically edited foods made available to the public. Other countries will likely follow suit. The USDA has confirmed that these tomatoes will not be regulated in the same manner as conventional genetically modified crops.

Gene editing technology involves altering an organism's existing DNA, while earlier forms of genetic modification tended to add DNA from other organisms. Foods produced via gene editing are often not subject to the same regulations as other genetically modified crops, as many changes introduced by gene editing also occur naturally.

The UK, now that is it free of EU laws and regulations aimed at shunning genetically modified organisms, is adopting a more positive attitude toward GM foods. The UK Parliament passed a law in January 2022 to reduce the time and cost of gene editing trials in the country.

As this new generation of GM foods with additional health benefits evolves, we would expect their popularity to increase.

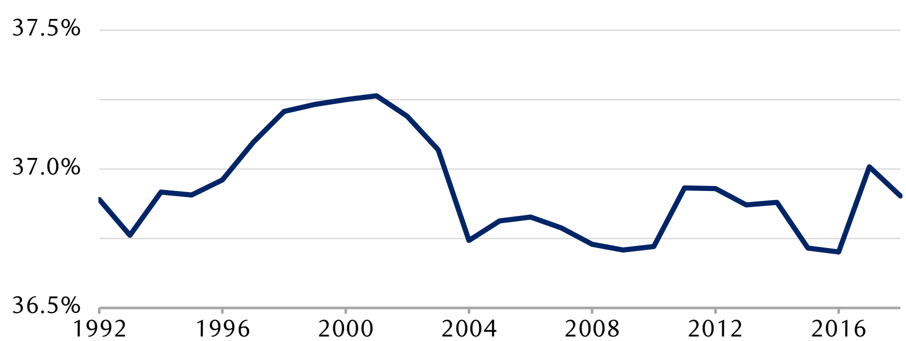
Precision farming equipment manufacturers

Precision farming refers to various techniques and tools increasingly in use that enable farmers to optimize crop productivity. An interesting development in Europe could further underpin the adoption of precision farming equipment as the EU is looking into relaxing its "at rest" rules.

Put in place in 1988, these rules require farmers to leave a portion of their land free from intensive production to foster healthy biodiversity after years

Despite 30 years of population growth, agricultural land area remains stable

Agricultural land as a percentage of total land area



Source - World Bank; data through 2018

of intense agriculture use. Increasing the amount of agricultural land would be a welcome outcome given that such land as a percentage of the total land area hasn't expanded since the early 1990s, according to the World Bank.

Potash producers

As the number of mouths to feed increases, so too does the demand for fertilizer. Potash is a popular fertilizer that improves plant durability and resistance to drought (by encouraging water retention), disease, weeds, parasites, and cold weather.

We believe potash producers appear to be in a good position to gain market share from fertilizer producers affected by higher gas feedstock prices. Canada is particularly well positioned, in our view, as Saskatchewan hosts the world's largest potash deposits though only a fraction is currently tapped. Moreover, sanctions against Russia and its ally Belarus, which together account for 40 percent of global potash production and exports, means other potash producers must step up.

A marathon, not a sprint

Global food security, already severely challenged by climate change, has become even more precarious following Russia's invasion of Ukraine. Sadly, there are no quick fixes. Countries with low agricultural capabilities, both in the developed and the developing world, are likely to struggle the most.

Technological solutions will likely play an increasingly important role in ensuring more people are fed despite increasingly difficult conditions. We see several areas where investors can find investable ideas in which growth prospects are driven by the search for food security, as indicated in the table below.

AgriTech can enhance food security

Strategies and solutions to improve food security

Strategies	Solutions
Increase yields on agricultural lands	• Precision farming – Satellite imaging, drones, sensors – Smart irrigation and soil technologies – Data analytics with artificial intelligence and big data – Internet of Things and connectivity • Gene technology – Disease, pest, and drought resistance – Gene editing • Fertilizers – Potash
Controlled environment farming	• Greenhouse and indoor farming technologies • Vertical farming • LED lighting systems • Aeroponics and hydroponics
Supply chain efficiencies	• Direct farm-to-consumers (meal kit delivery, e-groceries) • Waste reduction technologies – Crop waste reuse – Cooling and storage solutions – Cold chains – Smart packaging

Source - RBC Wealth Management

GLOBAL
Equity

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Pullback perspective

A great deal of our thinking on the outlook for equity markets is covered in the focus article "An unusual economic cycle shifts gears" on page 4. The bottom line for us is that our recession scorecard continues to give readings that suggest no U.S. recession is on the horizon. As long as that continues to be the case we would view the bull market that began in spring 2020 as having further to run.

The market correction of the last several months has so far been consistent with the pullbacks that have accompanied other U.S. GDP "growth scares" in past economic cycles. It may not be over and, in any event, a period of further consolidation of the very large gains booked over the 21-month, uninterrupted run to the end of last year would not be unusual. However, if our leading indicators of recession continue to signal that no U.S. recession is in the offing, then we expect this period of market consolidation will eventually resolve to the upside.

Looked at from the point of view of the equity market alone, a great deal of the damage in the pullback was delivered by a handful of mega-cap, tech-related stocks—the six largest capitalisation stocks in the S&P 500 delivered 45% of the losses. Illustrating this point, the equal-weighted version of the index, which counts each stock in the S&P 500 as contributing just one five-hundredth of the total index value, was down just 13.2% peak-to-trough, versus 19.2% for the cap-weighted index. So, the average stock declined much less than the index.

Also of note, Q1 earnings for the big decliners in the U.S. were mostly negative, whereas the earnings gains for the rest of the market were solidly in double digits, even if the high-flying Energy sector is taken out of the calculation.

It's worth noting that none of those deeply affected mega-cap stocks are found in other developed market indexes, which accounts for the comparatively more resilient performance of those markets.

Equity views

Region	Current
Global	+
United States	+
Canada	=
Continental Europe	=
United Kingdom	=
Asia (ex Japan)	=
Japan	=

+ Overweight; = Market Weight; – Underweight
Source - RBC Wealth Management

GLOBAL

Fixed income

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As central banks push forward, economies begin to push back

All systems remain go as most major central banks proceed in their plans to tighten monetary policy in a concerted effort to rein in inflationary pressures. But while that process clearly remains in the early stages, there are signs that the end of tightening could also already be on the horizon.

The minutes of the Fed's May policy meeting laid the groundwork for a reassessment of rate hike plans as early as this fall, stating that: "Many participants judged that expediting the removal of policy accommodation would leave the Committee well positioned later this year to assess the effects of policy firming and the extent to which economic developments warranted policy adjustments."

In our view, this means two more 50 basis point (bps) rate hikes at the June and July meetings, which would expeditiously bring the policy rate to a range of 1.75% to 2.00%, a level that would fall at the low end of the 2.0% to 3.0% range that Fed Chair Jerome Powell recently gauged to be the "neutral level" for the economy, or the point at which policy is neither stimulative nor restrictive. We believe that the Fed will pivot at the September meeting to a more data-dependent approach, and if needed, hike rates at a more gradual 25 bps increment per meeting.

The data already show that the Fed's forward guidance since last year and its rate hikes since March are

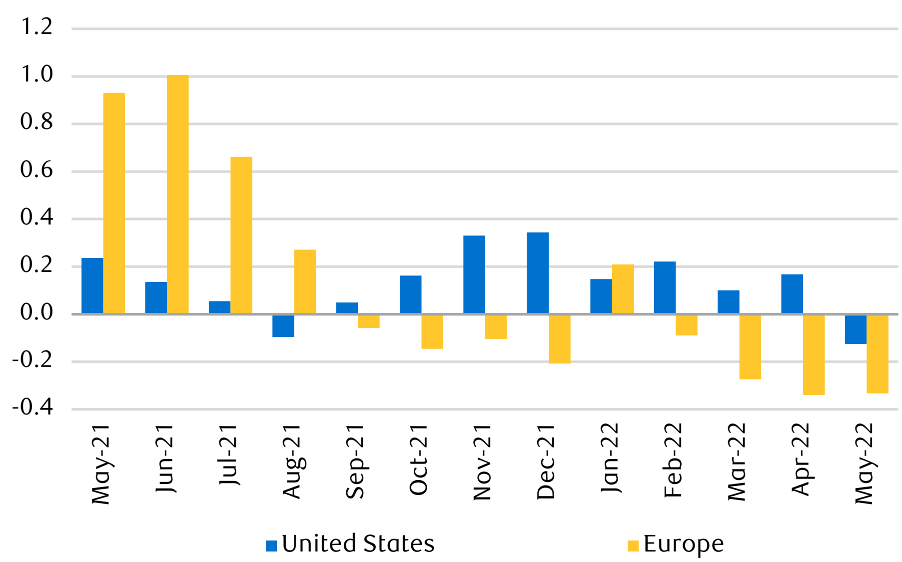
Fixed income views

Region	Gov't bonds	Corp. credit	Duration
Global	=	=	5–7 yr
United States	–	=	7–10 yr
Canada	=	=	5–7 yr
Continental Europe	=	=	5–7 yr
United Kingdom	=	=	5–7 yr

+ Overweight; = Market Weight; – Underweight
Source - RBC Wealth Management

Economic data has surprised to the downside in recent months

Comparison of U.S. and European Economic Surprise Indexes



Source - RBC Wealth Management, Bloomberg Economic Surprise Indexes; data through 5/25/22

GLOBAL FIXED INCOME

beginning to cool the economy. New home sales fell by 16.6% in April, the biggest monthly drop since 2013, as the average 30-year fixed rate mortgage surged to nearly 5.50%, according to Bankrate.com data. Market-based inflation expectations over the next five and 10 years have also fallen sharply since March, and are now at the lowest levels of the year—a clear sign that the market believes the Fed will succeed in taming inflation. And if inflation fears give way to growth fears later in the year, then the end of the Fed's rate hike cycle could come sooner than may be appreciated.

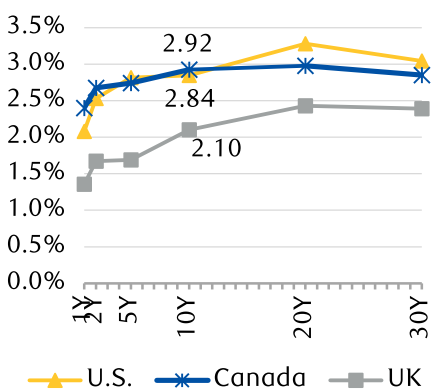
Not to be outdone, the Bank of Canada followed suit with a second consecutive 50 bps rate hike in early June, while signaling that policy rates may have to go beyond 3.0% in order to keep inflation expectations anchored.

The European Central Bank (ECB) has also guided markets to a key inflection point in the fall as ECB President Christine Lagarde stated it is likely that the policy rate will leave the negative interest rate phase by the third quarter, at which point the demand and inflation backdrop should dictate whether the next phase is one deeper into positive territory.

The net result is that North American benchmark 10-year sovereign yields have edged higher to around 3.0% as the bulk of central bank rate hikes are already priced in, while in Europe the German 10-year has taken another step higher to 1.23%, the highest level since 2014, as the ECB works to play catch-up to other global central banks.

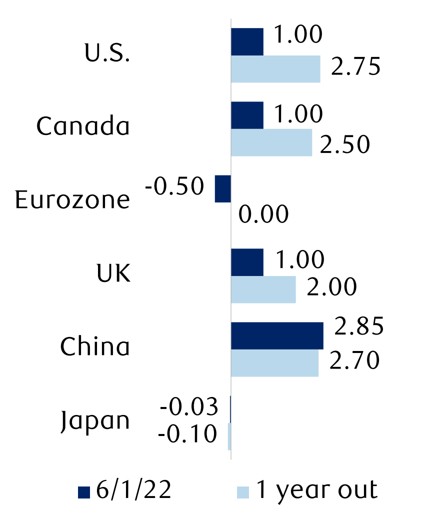
Monetary policy typically acts with a lag, and so the efforts of central banks over the past six months will likely shape the economy over the next six months. Early and aggressive action may ultimately give policymakers room to be more flexible later on.

Sovereign yield curves



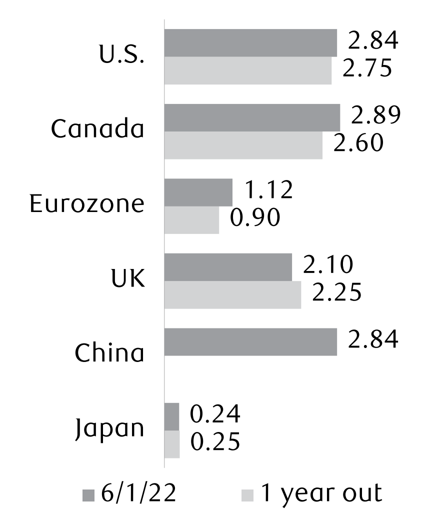
Source - Bloomberg; data through 5/31/22

Central bank rate (%)



Source - RBC Investment Strategy Committee, RBC Capital Markets forecasts, Global Portfolio Advisory Committee, RBC Global Asset Management

10-year rate (%)



Note: Eurozone utilizes German Bunds.
Source - RBC Investment Strategy Committee, Global Portfolio Advisory Committee, RBC Global Asset Management

U.S. RECESSION
Scorecard

Indicators still point to expansion

If the U.S. economy can avoid recession, the Global Portfolio Advisory Committee (GPAC) believes global investors should remain committed to equities. Our U.S. recession scorecard continues to give the economy an expansionary green light, although one of the seven recession indicators—ISM New Orders minus ISM Inventories—has shifted to a "Neutral" status from "Expansionary." Below we summarize the state of each indicator.

Yield curve (10-year to 1-year Treasuries)

This has been the most reliable leading indicator of U.S. recession. One-year Treasury yields moving above the 10-year yield has preceded the start of every recession for the past 75 years, with an average lead time of roughly 11 months.

The 10-year Treasury yield is still roughly 80 basis points higher than the one-year yield. Inversion, in our view, is a long way off.

Unemployment claims and unemployment rate

These two indicators should be looked at together. The smoothed trend of the monthly average of unemployment claims has typically turned higher two to six months ahead of the unemployment rate's upward turn, giving fair warning of an approaching recession some months in advance. It has produced occasional false signals, but none of those were subsequently confirmed by the unemployment rate.

The smoothed trend of the unemployment rate has usually turned upward at the start of a recession, or immediately before. Although it gives very little in the way of early warning, its negative signals have always been visible at the start of an economic downturn rather than months into it. This is especially useful because the start date of a recession is usually only announced definitively by the National Bureau of Economic Research about a year down the road.

The unemployment rate would have to move above 5% and the number of claims more than double from current levels over the next several months to turn their trends higher.

Conference Board Leading Economic Index

This indicator signals a recession is on the way when it falls below where it was a year earlier. It has always done so at least three months before

U.S. recession scorecard

Indicator	Status: Expansionary	Status: Neutral	Status: Recessionary
Yield curve (10-year to 1-year Treasuries)	✓		
Unemployment claims	✓		
Unemployment rate	✓		
Conference Board Leading Economic Index	✓		
Free cash flow of non-financial corporate business	✓		
ISM New Orders minus Inventories		✓	
Fed funds rate vs. nominal GDP growth	✓		

Source - RBC Wealth Management

U.S. RECESSION SCORECARD

the start of a recession, often six months before, and occasionally even earlier. The index may have peaked for this economic cycle in Q2 2021, but we don't think this indicator could turn negative on a 12-month basis until Q3 of this year at the earliest—and then only if the economy deteriorates swiftly in the intervening months. It is one of the strongest of the recession indicators we follow, and we think it is a long way from giving a negative signal.

Free cash flow of non-financial corporate business

This indicator measures the cash generated by non-financial corporate businesses as a percentage of GDP. It has given only one false positive signal in more than 65 years. In all other cases when this indicator has fallen below where it was a year ago, a recession has followed—typically, two to three quarters later. It looks to be in no danger of signaling an approaching recession anytime soon, in our opinion. The next release will come out in late June.

ISM New Orders minus Inventories

The difference between the ISM New Orders component and the ISM Inventories component has turned negative near the start of most U.S. recessions. But it has also registered occasional false positives—signaling a recession was imminent when none subsequently arrived. Moreover, this indicator only relates to activity in the manufacturing sector (some 15% of the U.S. economy) and is derived from a survey rather than hard data. Therefore, we view this as a corroborative indicator—one to pay attention to if other, longer-term indicators are implying a recession is on the way. As of the recently released May data, the three-month moving average of the spread between New Orders and Inventories fell below zero—by just one-tenth of a point—resulting in the shift to Neutral from the previous Expansionary level.

Fed funds rate vs. nominal GDP growth

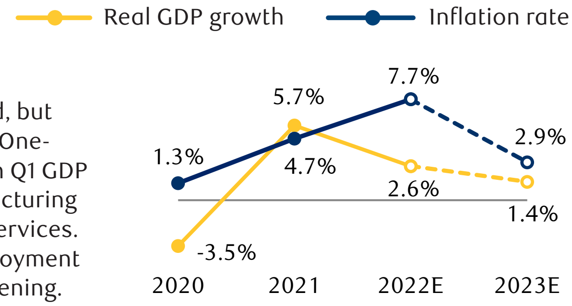
Since 1954, the fed funds rate has typically moved above the nominal (i.e., not adjusted for inflation) year-over-year growth rate of GDP prior to the onset of recession. It is not an ideal timing tool but a fed funds rate in excess of nominal GDP growth has been a precondition of all U.S. recessions, except for two where the negative crossing occurred just as the recession was getting underway.

At the end of Q1, the nominal GDP growth rate stood at 10.6%, a long way above the 1% Fed funds rate. We expect the year-over-year nominal GDP run rate will slow to between 7% and 8% by the end of 2022, and decrease further to between 4% and 5% by late 2023. Only a dramatic shift into a higher gear by the Fed would likely get the fed funds rate above the nominal GDP growth rate before the middle of next year.

KEY
Forecasts

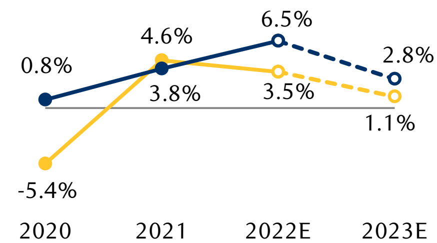
United States – Heading for better Q2

Consumer and business confidence sagged, but new orders for durable goods remain firm. One-time inventory and trade subtractions from Q1 GDP should partially reverse in Q2. New manufacturing orders may weaken as spending shifts to services. Goods inflation should begin to ease. Employment robust but payroll strength gradually weakening. Unemployment claims off their lows, bottoming process ongoing. Expect Fed tightening to dampen growth later in the year.



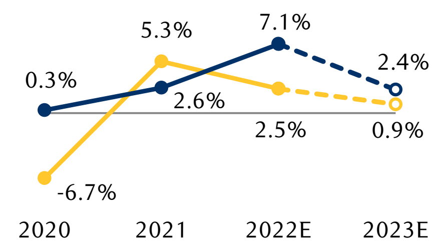
Canada – Growing

Q1 GDP came in at a strong 3.1% led by consumer and business spending, including a build in inventories. Government spending flat, trade modestly weaker. Reopening of "close contact" sectors boosted services spending and employment. Back-to-office plans widespread among major employers, including government, but progress slow so far. More rate hikes from the BoC and inflation expected to weigh on consumer discretionary spending in the second half.



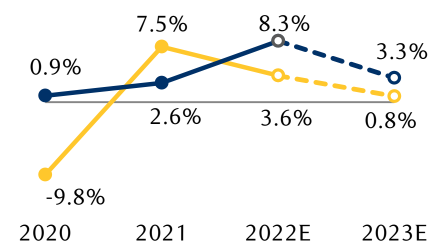
Eurozone – Remains under pressure

Q2 GDP growth for the zone likely to be slower than Q1's 0.8%. Consumer spending dampened by squeeze on incomes from inflation, especially soaring energy bills. German trade impacted by supply chain dislocations from the effects of the Ukraine war. PMIs still in expansion territory, but services readings weakening. Consumer confidence weak, but business sentiment improving.



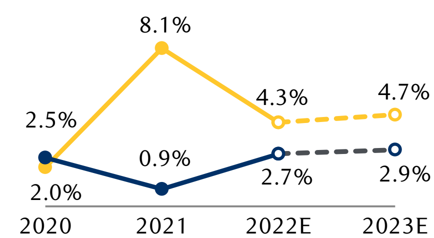
United Kingdom – BoE tightening, GDP softening

After a strong Q1, GDP for Q2 likely to be flat; consensus forecast looking for weaker second half. Consumer and business confidence both weakened further. Sharply higher utility and petrol costs taking a toll. Services PMI fell sharply but remains in expansionary zone. Manufacturing output soft. Employment solid. Inflation now at 9%. BoE likely to hike further.



China – Policy boost expected

Shutdowns still a factor but Shanghai reopening an important positive. PMIs, new orders, and retail sales look to be stabilizing, rebound probable. Property sector woes and supply chain disruptions still factors. Government's expected growth rate of 5.5% may be unreachable following lockdowns. More policy support likely forthcoming. PBoC encouraging banks to lend to businesses.



Japan – Better tone emerging

Inventories down, machinery orders and corporate profits up. Supply chain/shipping disruptions have eased somewhat, and China reopening a positive. Auto production rebounding and tourism arrivals surging. Inflation far milder than most other economies despite weak currency. BoJ sticking with low-rate policy.

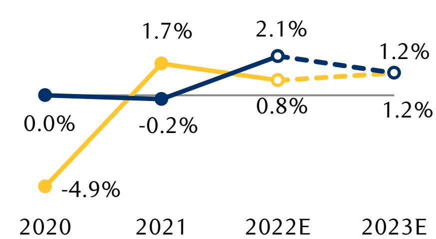


Chart source - RBC Investment Strategy Committee, RBC Capital Markets, Global Portfolio Advisory Committee, RBC Global Asset Management, Bloomberg consensus estimates

MARKET Scorecard

Data as of May 31, 2022

Equities

U.S. equities stood mostly unchanged in May, though YTD performance continues to underperform global equity markets.

Bond yields

Global bond markets sold off while Treasuries strengthened following the release of the Fed meeting minutes, which were less hawkish than economists expected.

Commodities

Gold, silver, and copper commodity prices dropped while oil continues driving U.S. gas prices to new record highs daily.

Currencies

The U.S. dollar weakened against global currencies as recession fears in the U.S. weakened the greenback.

Index (local currency)	Level	1 month	YTD	12 month
S&P 500	4,132.15	0.0%	-13.3%	-1.7%
Dow Industrials (DJIA)	32,990.12	0.0%	-9.2%	-4.5%
Nasdaq	12,081.39	-2.1%	-22.8%	-12.1%
Russell 2000	1,864.04	0.0%	-17.0%	-17.8%
S&P/TSX Comp	20,729.34	-0.2%	-2.3%	5.1%
FTSE All-Share	4,201.96	0.4%	-0.1%	4.6%
STOXX Europe 600	443.35	-1.6%	-9.1%	-0.8%
EURO STOXX 50	3,789.21	-0.4%	-11.8%	-6.2%
Hang Seng	21,415.20	1.5%	-8.5%	-26.5%
Shanghai Comp	3,186.43	4.6%	-12.5%	-11.9%
Nikkei 225	27,279.80	1.6%	-5.3%	-5.5%
India Sensex	55,566.41	-2.6%	-4.6%	7.0%
Singapore Straits Times	3,232.49	-3.7%	3.5%	2.2%
Brazil Ibovespa	111,350.51	3.2%	6.2%	-11.8%
Mexican Bolsa IPC	51,752.53	0.7%	-2.9%	1.7%
Bond yields	**5/31/22**	**4/29/22**	**5/31/21**	**12 mo. chg**
U.S. 2-Yr Tsy	2.557%	2.715%	0.141%	2.42%
U.S. 10-Yr Tsy	2.844%	2.934%	1.594%	1.25%
Canada 2-Yr	2.662%	2.624%	0.320%	2.34%
Canada 10-Yr	2.891%	2.866%	1.486%	1.41%
UK 2-Yr	1.586%	1.591%	0.063%	1.52%
UK 10-Yr	2.101%	1.905%	0.795%	1.31%
Germany 2-Yr	0.503%	-0.601%	-0.662%	1.17%
Germany 10-Yr	1.122%	-0.185%	-0.187%	1.31%
Commodities (USD)	**Price**	**1 month**	**YTD**	**12 month**
Gold (spot $/oz)	1,837.35	-3.1%	0.4%	-3.6%
Silver (spot $/oz)	21.55	-5.4%	-7.5%	-23.1%
Copper ($/metric ton)	9,445.50	-3.3%	-3.0%	-7.8%
Oil (WTI spot/bbl)	114.67	9.5%	48.9%	72.9%
Oil (Brent spot/bbl)	122.84	12.3%	57.9%	77.2%
Natural Gas ($/mmBtu)	8.15	12.4%	118.4%	172.8%
Agriculture Index	582.16	1.8%	30.8%	34.4%
Currencies	**Rate**	**1 month**	**YTD**	**12 month**
U.S. Dollar Index	101.7520	-1.2%	6.4%	13.3%
CAD/USD	0.7906	1.7%	-0.1%	-4.6%
USD/CAD	1.2647	-1.6%	0.1%	4.8%
EUR/USD	1.0734	1.8%	-5.6%	-12.2%
GBP/USD	1.2602	0.2%	-6.9%	-11.3%
AUD/USD	0.7177	1.6%	-1.2%	-7.2%
USD/JPY	128.6700	-0.8%	11.8%	17.4%
EUR/JPY	138.1100	0.8%	5.5%	3.1%
EUR/GBP	0.8518	1.6%	1.2%	-1.0%
EUR/CHF	1.0297	0.3%	-0.8%	-6.3%
USD/SGD	1.3699	-1.0%	1.5%	3.6%
USD/CNY	6.6718	1.0%	5.0%	4.7%
USD/MXN	19.6571	-3.8%	-4.2%	-1.5%
USD/BRL	4.7336	-4.8%	-15.1%	-9.3%

Equity returns do not include dividends, except for the Brazilian Ibovespa. Equity performance and bond yields in local currencies. U.S. Dollar Index measures USD vs. six major currencies. Currency rates reflect market convention (CAD/USD is the exception). Currency returns quoted in terms of the first currency in each pairing.

Examples of how to interpret currency data: CAD/USD 0.79 means 1 Canadian dollar will buy 0.79 U.S. dollar. CAD/USD -4.6% return means the Canadian dollar has fallen 4.6% vs. the U.S. dollar during the past 12 months. USD/JPY 128.67 means 1 U.S. dollar will buy 128.67 yen. USD/JPY 17.4% return means the U.S. dollar has risen 17.4% vs. the yen during the past 12 months.

Source - RBC Wealth Management, RBC Capital Markets, Bloomberg; data through 5/31/22

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.

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Required disclosures

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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.

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Distribution of ratings – RBC Capital Markets Equity Research

As of March 31, 2022

			Investment Banking Services Provided During Past 12 Months	
Rating	Count	Percent	Count	Percent
Buy [Outperform]	841	57.68	330	39.24
Hold [Sector Perform]	569	39.03	172	30.23
Sell [Underperform]	48	3.29	3	6.25

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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.

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.

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