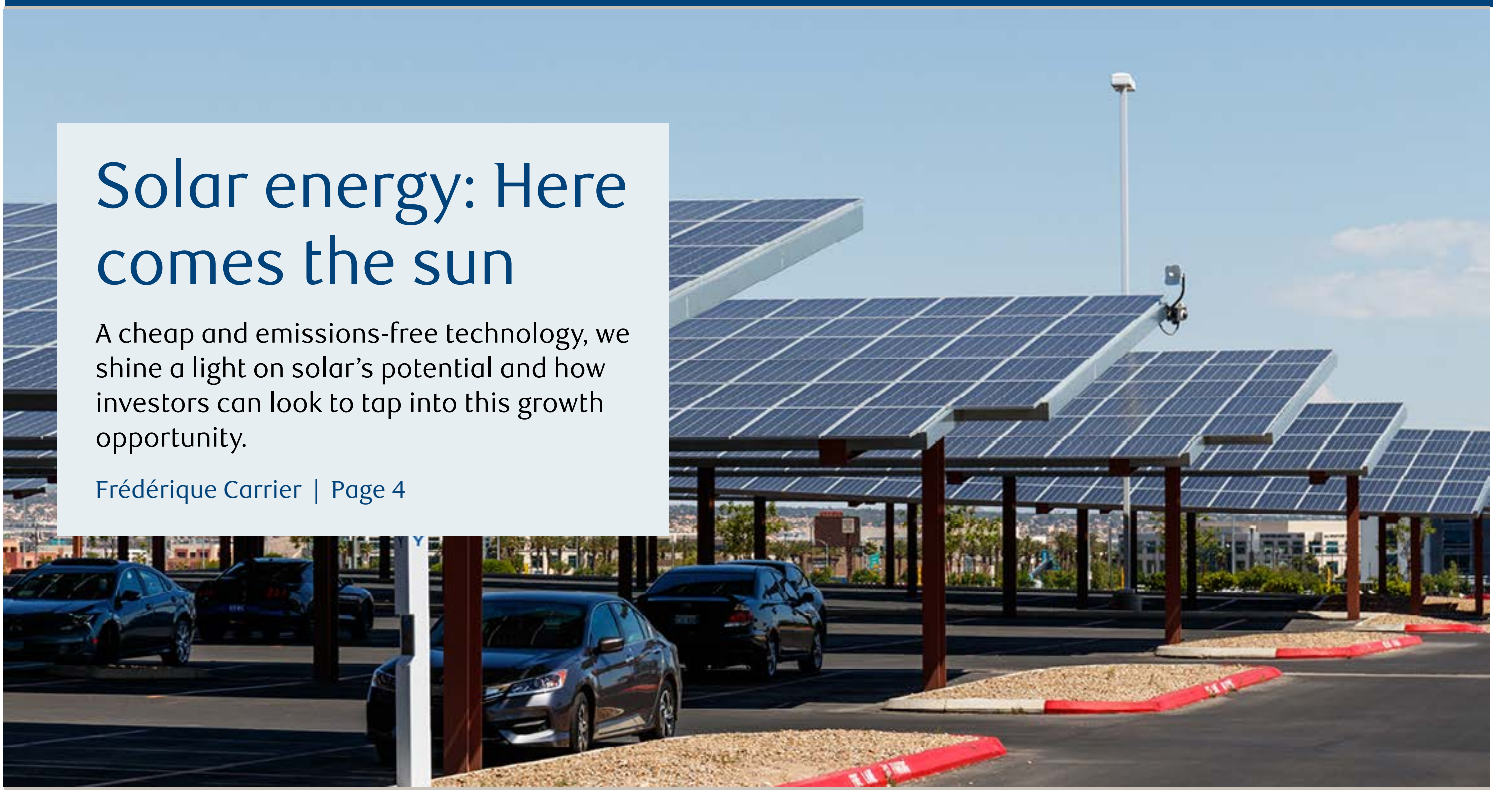
GLOBAL Insight

Wealth Management

Perspectives from the Global Portfolio Advisory Committee

October 2022



Solar energy: Here comes the sun

A cheap and emissions-free technology, we shine a light on solar's potential and how investors can look to tap into this growth opportunity.

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Growing likelihood of recession

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It's the destination, not the journey

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GLOBAL
Insight

October 2022

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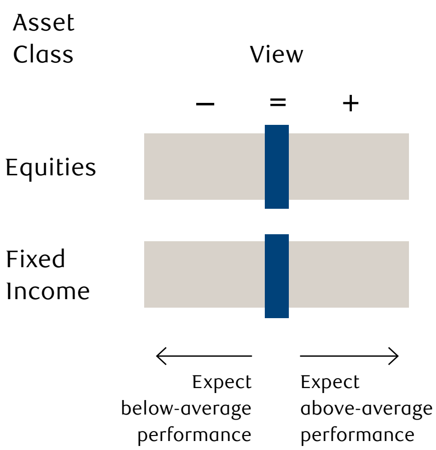

(+/=/–) represents the Global Portfolio Advisory Committee's (GPAC) view over a 12-month investment time horizon.

+ 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

- With most western central banks intent on pursuing aggressive policy tightening despite slowing economies, the probability of recessions has increased. Much of this outlook seems to be reflected in current valuations, which have already been compressed by the higher interest rates. Consensus earnings estimates will likely be downgraded further as economies slow. We do not expect sustainable market gains until there are signs the Fed intends to reverse its hawkish policy.
- We would hold a Market Weight position in a global equity portfolio, as well as in U.S. and Canadian equities. We look favourably on Japanese and Asia ex Japan equities, where we would hold Overweight positions. Both of these regions should benefit from the reopening of economies, government stimulus, and supportive central banks. By contrast, we would hold Underweight positions in UK and European equities, two regions suffering from much higher energy prices, and where central banks are tightening monetary policy even as those economies contract.

Fixed income

- Government bond yields continue to move higher on repriced Federal Reserve rate hike expectations. As a result, the 2-year Treasury yield hit a fresh multiyear high of 4.3% in September, the highest level since 2007. The 10-year Treasury yield approached 4.0% in Q3, but held just shy of that key level. The net result is that yield curves remain deeply inverted as markets price further Fed rate hikes, lower long-term inflation expectations, and heightened recession risks, both in the U.S. and globally, on a 12-month horizon. The big question for investors is whether Q3 will finally mark the peak for U.S. sovereign yields after a relentless rise thus far in 2022. Our view is yes. While we believe there is scope for the Fed to begin the process of slowing the pace of rate hikes at upcoming policy meetings, energy prices and ever-higher inflation in Europe will likely keep the Bank of England and the European Central Bank on offense, and their pace of rate hikes could accelerate in the months ahead.
- We remain Market Weight U.S. fixed income with yields at multiyear highs, with a positive outlook for bank-issued preferred shares on the attractive yields and defensive nature of bank balance sheets. We continue to focus on upgrading credit quality as we believe credit valuations are too rich relative to growing recession risks. Internationally, we maintain a negative outlook for government bonds, with a shorter duration profile, as more aggressive rate hikes and inflation that has yet to find a peak could keep yields on the ascent.
- We maintain our Market Weight in global fixed income, with a Market Weight allocation to corporate credit via investment-grade corporate bonds and select preferred shares, and Underweights to high-yield corporates and international bonds.

MONTHLY
Focus

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Solar energy: Here comes the sun

A cheap and emissions-free technology, solar power has become part of the energy portfolio in most countries. Today's energy crisis and the quest to achieve net-zero emissions, as well as technological advancements, have enhanced solar's prospects, most recently in the U.S. where the Inflation Reduction Act promotes clean energy and offers useful incentives. We explore the industry's potential and how investors can look to tap into this growth opportunity.

Key points

- **Solar generates less than four percent of global energy at the moment, but this share could increase fivefold by 2050.**
- **Solar is the fastest-growing form of renewable energy: it is the cheapest energy source, can help countries reach net-zero emissions targets, and benefits from government incentives.**
- **Storage solutions for solar have much improved.**
- **Installing solar arrays in existing spaces, including parking lots, farmland, and bodies of water, offers much promise.**

A young industry

Photovoltaic (PV) systems or solar power systems are devices that convert sunlight into electricity. They can take the form of mini-grids for personal use on rooftops, or combined in solar farms to generate electricity on a commercial scale.

Solar energy only really took off this century. The technology, created in the U.S. in 1954, was initially almost exclusively used in the space industry. In 2000, after prices of modules had fallen markedly, Germany passed a law to boost renewable energy development, creating an exploitable market for the solar industry in the process. A fixed price on energy generated from renewable sources encouraged people and companies in Germany to utilize solar panel systems.

China, spotting an opportunity, ramped up solar cell production to a scale which remains unmatched in the West, and the country accounts for 70 percent of global production today. Having gained popularity in Europe, solar energy use has spread globally.

Solar farms are often thought of as only belonging in sunny climes—the world's largest solar farm with 2.25 gigawatts (GW) of capacity and covering 14,000 acres (56 square kilometers) is located in India. But these installations can operate in colder climates and under cloudy conditions, though with relatively lower efficiency. Alberta boasts Canada's largest solar farm, the Travers Solar Project, which has 465 megawatts (MW) of capacity

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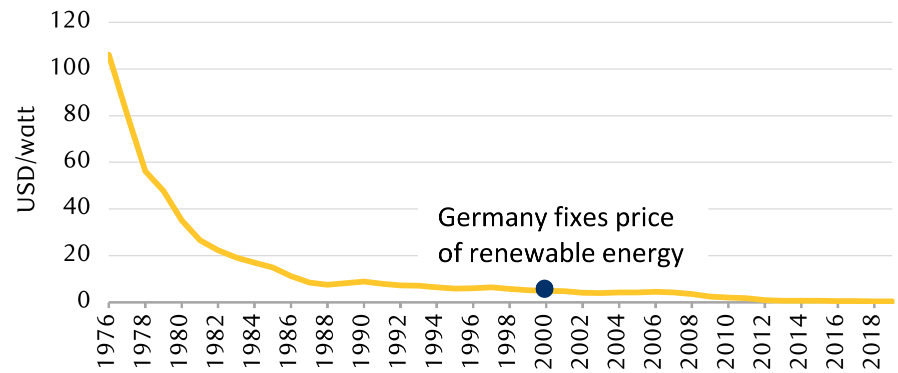
Solar energy: Here comes the sun

PV module prices fell drastically over 20 years

Global average price of solar PV modules, $ per watt



Note: Prices measured in 2019 USD

Source - LaFond et al. (2017) & IRENA database; OurWorldinData.org

spread over 3,300 acres (13.4 square kilometers) and can provide energy for up to 150,000 homes. Solar panels can be built to withstand as much as two meters of snow and temperatures well below zero.

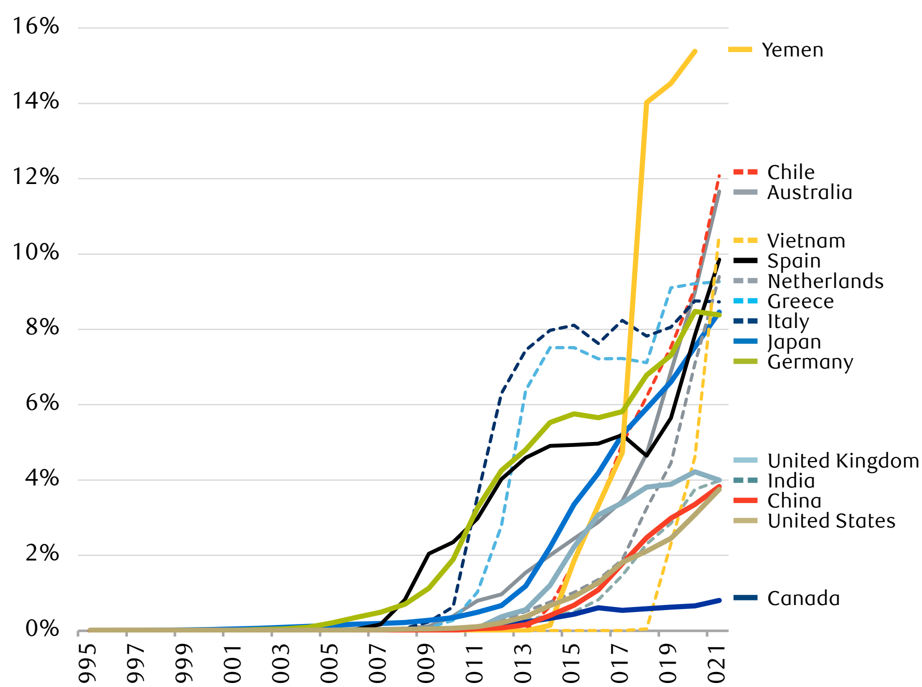
Solar energy to gain importance

Today, solar represents a mere 3.6 percent of global energy generation, though the percentage varies widely by country.

Despite its seemingly low share of global electricity production, solar is one of the fastest-growing renewable energy technologies and appears poised to play a major role in the global electricity generation mix in the future.

Solar's share of electricity has increased everywhere

Select countries' share of electricity production from solar



Source - BP Statistical Review of World Energy (2022), Ember's Global Electricity Review (2022), Ember's European Electricity Review, OurWorldinData.org

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Solar energy: Here comes the sun

According to the International Energy Agency (IEA), the sun could be the largest source of electricity by 2050, accounting for more than a quarter of worldwide power generation. The IEA estimates that solar PV systems could generate up to 16 percent of the world's electricity by 2050 while solar thermal power—another solar technology—could provide an additional 11 percent of electricity.

In the more immediate future, BloombergNEF expects new-build solar capacity to grow annually by 11 percent to 2030, with Europe and Asia to add the most capacity, though expansion in North America will be important too, thanks in particular to the U.S.'s recent climate legislation.

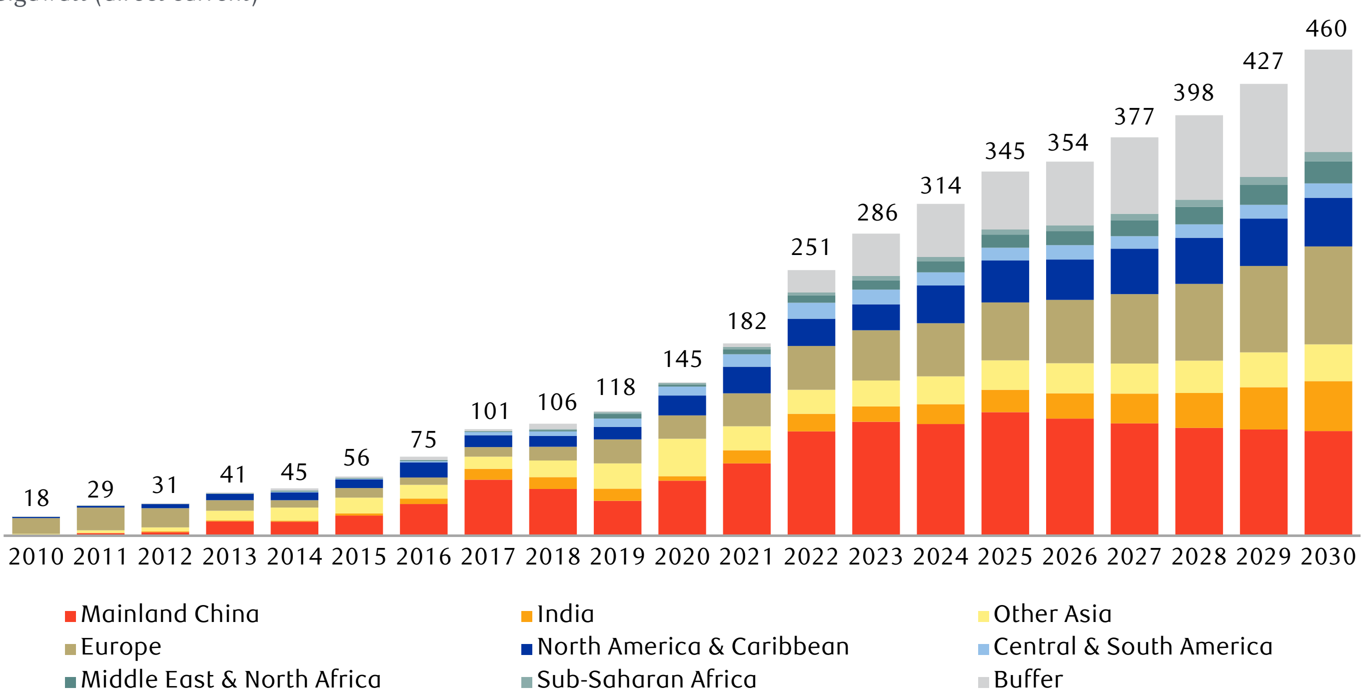
What's behind solar energy's appeal?

There are several factors driving solar's increasing popularity.

- **Cheap solution:** At the end of 2020, solar was the cheapest of all energy sources, taking into consideration all the costs of constructing, operating, and maintaining a solar facility over its lifetime, or the levelized cost of energy (LCOE), according to calculations by Lazard, an advisory firm. From mid-2021, rising commodity prices increased the LCOE of both wind and solar, though more slowly than for other energy sources.

New-build solar panel capacity growth study for various regions based on a mid-case scenario

Gigawatt (direct current)



Note: The "buffer" represents the new-build panel capacity that is particularly difficult to estimate with any accuracy, such as the capacity geared towards the residential market, a growing part of the overall market, but one for which there isn't reliable data.

Source - BloombergNEF

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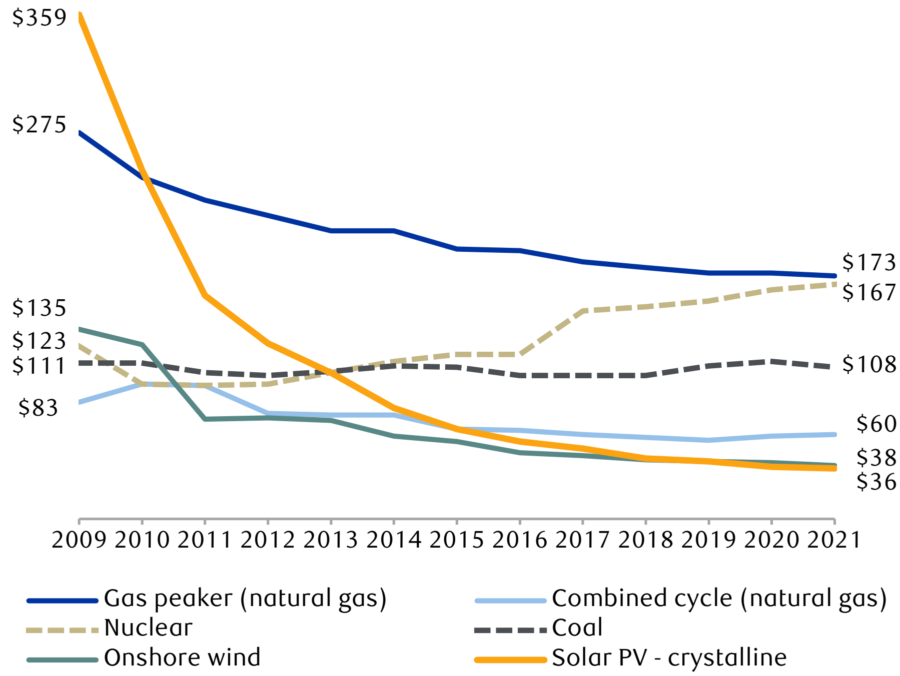
Solar energy: Here comes the sun

Solar energy is now the cheapest way to generate electricity

Average unsubsidized levelized cost of energy (LCOE), $/megawatt hour (MWh)



Note: The LCOE is the lifetime cost of building and operating a generation asset, expressed as a cost per unit of electricity generated ($/MWh). It includes all the costs a generating facility may face, including pre-development, capital, operating, fuel, and financing costs.

Source - Lazard's levelized cost of energy analysis

- **Diversify a country's energy sources:** The current energy crisis in Europe has reinforced the need for countries to diversify their energy portfolios so as not to be overly dependent on one source nor on unreliable suppliers. While the immediate response to low natural gas supplies has often been more drilling, plans to roll out new solar capacity have been accelerating in many countries in Europe, as well as other regions.

  For instance, Germany's official target is now to reach 215 GW of solar capacity by 2030, up from its current 63 GW of installed capacity. This suggests a very rapid acceleration of deployment over the rest of the decade. Germany has already experienced strong demand for solar panels from residential and small commercial customers due to rising power prices and voluntary actions to reduce demand for Russian gas.

  In Italy, 823 MW of solar capacity were installed during the first five months of 2022, an amount close to the capacity installed in all of 2021. Italy's transmission system operator Terna suggests that 40 percent of the new installed capacity was for the residential segment.

- **Help countries reach net-zero targets:** Solar panels produce electricity without creating CO_2 emissions. Admittedly, the manufacturing of panels consumes a great deal of energy and creates emissions, but over their 30-year lifespan, solar panels are an attractive way to help countries realize net-zero targets.

The Inflation Reduction Act in the U.S. extended the tax credit for solar by 10 years and introduced new production-based tax credits for solar manufacturing. These are likely to be a boon to an industry that suffered from tariff-related disruption for years. On June 6, 2022, the White House postponed possible duties on silicon solar module imports from Southeast Asia for two years, which should encourage additional solar installations.

Meanwhile, China's 14th Five-Year Plan, issued in June 2022, targets to double the capacity of wind and solar over 2021–2025 from that of 2016–2020.

- **Benefits from government incentives:** In the U.S., the Inflation Reduction Act offers many incentives that should make the clean energy transition more affordable, including tax credits for electric vehicles, home electrification upgrades, heat pumps, and solar systems.

  In particular, the legislation extends a 30 percent tax credit for residential solar systems that was due to end in December 2022, to January 1, 2034. Leased or purchased battery storage systems also qualify for a 30 percent credit.

  Bloomberg points out that in concert, the incentives are mutually reinforcing. Electrifying a home with solar energy that is also used to charge an EV cuts fossil fuel costs and greenhouse gas emissions. Battery systems enable homeowners to store excess solar energy generated during the day and tap it at night, thus avoiding high electric utility rates. Batteries can also help keep the lights and internet on during climate-driven blackouts, an increasingly common occurrence.

  Canada also offers incentives, as does Australia. Europe has long been offering support for emissions-reducing initiatives, providing incentives that aim to make clean energy the most efficient and cost-effective option for households. Most European countries that subsidize residential rooftop solar panels pay homeowners a premium on the electricity their systems supply to the power grid. Some countries also offer subsidies to install solar panels, including France, Germany, and Italy.

  For households, once the investment in a solar system is recouped, the electricity it generates is essentially free, except for maintenance costs and the service fees a utility charges to connect to the grid.

Supply chain bottlenecks

The solar industry didn't escape the post-pandemic supply chain disruptions, with 2022 marking a second consecutive year of high prices for most solar components and materials.

Two-thirds of the production cost of a solar module derives from materials, including copper, steel, aluminum, and polysilicon, a common form of silicon, itself a material with semiconducting properties.

These commodities suffered from supply chain disruptions which led to higher prices. Polysilicon prices surged more than 200 percent in the two years to August 2022, with supply unable to keep up with strong global demand for solar panels as China, which accounts for approximately 80 percent of global polysilicon production, maintained strict COVID-induced lockdowns. However, after spiking earlier this year, the prices of most metals fell sharply over the summer.

Soaring polysilicon prices have encouraged producers to ramp up capacity significantly and rapidly. BloombergNEF expects a return to a state of oversupply could lead polysilicon prices to drop from the August 2022 peak of $39.19/kg to $15/kg in 2023 and less than $10/kg in 2024. Such a drop in an important raw material would be reflected in the price of solar modules.

Moreover, in the U.S., the Inflation Reduction Act offers generous subsidies for domestic manufacturing. While details are still being ironed out, such support is likely to restart idled polysilicon capacity while attracting new investment for module assembly and possibly wafer production, according to BloombergNEF.

Storage solution?

It is often thought that renewables are too unreliable due to their intermittent nature and that they are not well-suited to meet surging demand early in the morning and again in the evening. Such concerns are understandable given a grid cannot run the risk of blackouts.

Moreover, it has been difficult to add a lot of solar to the existing power grid because there is a limit to how much energy can be put on it—too much solar could overpower it, so excess energy needs to be put somewhere.

Storage can help stabilize the grid, balance energy output with demand, and increase the efficiency of renewables. So far, storage solutions for solar have been cumbersome.

Still, battery technology is improving. Lithium-ion technology is becoming a viable option for storing at least a few hours' worth of solar energy that is generated in the middle of the day, when demand is low, for use in the evening, when generation declines but demand shoots up.

Batteries aren't the only way to store energy, but they are the fastest-growing solution for short-term storage. For longer-term storage, a different kind of battery, the flow battery, can be used. In this type of storage, the charge is stored outside of a battery cell, so as to store a greater amount of energy for a longer period of time. But flow batteries remain expensive.

Another method is "gravity drops" in which heavy objects, such as cement blocks or bricks, are hoisted into the sky by, for example, giant cranes. These massive weights are then lowered under natural gravitational force to create electricity.

This method works in a similar way to pumped hydropower but is more practical. Hydropower funnels water uphill before releasing it through turbines to create electricity, and thus necessitate two bodies of water and a hill to function, requirements which are not always at hand. Gravity drops can store energy for between six and 14 hours.

BloombergNEF thinks solar energy storage solutions will eventually evolve into a mix of lithium-ion batteries alongside hydrogen solutions, whereby solar energy generates electrical power that is converted into hydrogen to be used as fuel.

Innovations

As solar is a technology that has become cheap so quickly, more efficient use of it offers much promise, such as by installing solar arrays in existing spaces, including:

- **Rooftops:** Some retailers in the U.S. are already taking advantage of their solar-ready real estate. Walmart generates up to 30 percent of the energy for its California stores from solar panels on its rooftops. Ikea has installed solar panels at 90 percent of its U.S. outlets.
- **Parking lots:** Disneyland Paris recently unveiled the first section of its guest parking lot solar canopy, having installed 46,000 solar panels covering 7,000 parking spaces. These will generate 10 GW of electricity per year, or enough to power a town of some 5,000 people, while offering the additional benefit of keeping cars in the shade.
- **Farmland:** Solar modules can be built in such a way that the soil beneath them can still be used effectively for growing vegetables. A study by the University of Arizona found that these crops responded well to these structures, which can protect against heavy rain and hail, and ensure that less water is used for irrigation as the soil retains moisture longer when partly shaded. Farmers can use the solar energy on their farms, or sell it to the grid.
- **On water:** Solar panels can be mounted on floating raft-like structures. Singapore has a floating solar farm on a reservoir that produces enough electricity to power 16,000 four-room flats. The panels are cooled by the water, which makes them more efficient and reduces water evaporation, an important advantage at a time when water is becoming ever more precious.

Beyond expanding the applications of solar technology, a game-changing innovation would be solar panels which work at night. The World Economic Forum reports that a team of scientists at Stanford University have developed solar panels which absorb energy from the sun during the day and radiate that stored heat back into the air at night. This creates a difference in temperature between the cooler panels and the warmer air. A thermoelectric generator converts that difference in temperature into electricity.

Presently, at night these solar panels only produce a small fraction of what they can generate during the day, but the technology will likely evolve. Developing it to scale holds the potential to reduce or even eliminate the need for storage.

The solar industry ecosystem

We see several industries with the potential to benefit from the increased importance of solar as an energy source:

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Solar energy: Here comes the sun

- **PV panel manufacturers and suppliers:** Dominated by Chinese companies, though with some North American firms as well, this sector includes polysilicon and PV wafer producers and panel manufacturers. Some companies in this space are also focusing on storage and the maintenance of solar projects.
- **Solar system installers:** These companies offer engineering, procurement, construction, or even storage services for solar projects for utilities or residential/commercial markets.
- **Solar technology:** These companies provide technology for solar panels, such as inverters, which convert the solar panel's DC (direct current) energy to AC (alternating current) power used in homes, and/or technology that can improve solar cell production yields.
- **Infrastructure:** Most renewable infrastructure companies hold solar assets alongside other renewable assets such as wind or hydro. Nevertheless, their exposure to solar may be substantial.

Let it shine

Solar appears set to play an increasing role in our energy supply. Its many advantages, including being the lowest-cost technology and emissions-free, make it an attractive candidate, in our view, to help countries decarbonize. The energy crisis today makes this even more of an imperative. Generous incentives in Europe and now also in the U.S. should further underpin solar's growth.

U.S. RECESSION

Scorecard

Growing likelihood of recession

Three of our seven leading indicators of U.S. recession have reached levels that unequivocally signal an economic downturn is on the way. The Conference Board Leading Economic Index joined the recessionary grouping at the end of Q3. Three others are still firmly in expansionary territory but are moving (slowly) in the wrong direction, and the last—the unemployment rate—is very marginally above its all-time low with no prospect of a change to a negative trend evident.

The indicators that have flipped to recessionary status so far, together with the most recent low in unemployment claims (March 2022), point toward a recession getting underway by Q2 2023, in our view.

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

The position of short-term interest rates relative to long-term rates—a.k.a. the shape of the yield curve—has been the most reliable leading indicator of a U.S. recession. Before the start of every recession for the past 75 years, the 1-year Treasury yield has risen above the 10-year yield, indicative of the arrival of tighter credit conditions. About a year after this crossing occurs, on average, a recession begins.

The 1-year yield rose above the 10-year yield decisively in July. Thus, history suggests the U.S. economy will be in recession by next summer.

A majority of U.S. banks have begun raising lending standards, corroborating the yield curve's signal that credit conditions are becoming more restrictive. However, loan payment delinquencies and default rates remain very low; therefore, credit could remain accessible, albeit more expensive, for some time yet.

ISM New Orders minus Inventories

The difference between the New Orders and the Inventories sub-indexes of the ISM Purchasing Managers' Index 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. It has been negative since May.

U.S. recession scorecard

	Status		
Indicator	Expansionary	Neutral	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

Conference Board Leading Economic Index

Historically, this series has given reliable early warnings of recession. When the index has fallen below where it was a year earlier, a recession has always followed—usually two to three quarters later.

This indicator turned negative in Q3, shifting it to the red column on our Scorecard. It now indicates a U.S. recession will likely be underway by Q2 of next year.

Unemployment claims

This series set its low, so far, for this cycle back in March at 178,000. The cycle low for claims has typically been registered about 12 months before the start of the next recession. So, if no lower reading is posted in the coming months, its history would suggest a recession could get underway by spring of next year.

After setting that low in March, the number of claims rose steadily to a peak of 245,000 in July. Since then, new monthly claims have fallen all the way back to 207,000. A new low for the cycle in the coming months can't be entirely ruled out.

Unemployment rate

The unemployment rate ticked higher in August to 3.7% from a multi-decade low of 3.5% in July. It would need to climb to almost 4.5% by December to signal a recession is definitely on the way. Once that signal is given, on average it has been eight to nine months from the lowest monthly reading until a recession gets underway, although there have been several instances where the time gap was only two to three months.

As for the rest ...

Neither the **free cash flow of non-financial corporate business** nor the **federal funds rate vs. nominal GDP growth** appear remotely close to crossing the threshold into a recessionary reading, although in both cases the positive gap is narrowing.

Weighing up the current positioning of all seven indicators and projecting their likely paths over the next couple of quarters continues to point to a growing probability the U.S. will enter recession sometime in the first half of 2023.

GLOBAL
Equity

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A dose of perspective

After a two-month rally into mid-August, equity markets resumed their decline through September. Most now sit at or below their June lows, down some 20% or more year-to-date.

As major markets perched near all-time highs early in the year, there was a general expectation 2022 would bring further improvement to economies still emerging from the dislocations set in motion by the pandemic. There then followed the rapid arrival of a number of market-unfriendly developments:

- The onset of yet another wave of Omicron variant infections, which disrupted the reopening of economies in much of the developed world and led to a series of output-crippling lockdowns in China that are ongoing;
- Surging inflation well beyond what forecasters had expected as too much money chased an inadequate supply of goods. Shortages were exacerbated by supply chain disruptions which have taken much longer than originally anticipated to resolve;
- The rapid rise of food and energy prices due to constrained supplies, dramatically escalated by the war in Ukraine;
- Labor shortages which hobbled the reopening of large parts of the service economy; and
- The abrupt shift of central bank policies from tolerating rising inflation to actively trying to rein in price increases through aggressive interest rate hikes and quantitative tightening.

Equity views

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

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

Punishing bond yields

From an equity investor's standpoint, the biggest villain has been the dramatic rise in bond yields. Since the beginning of the year, the 10-year U.S. Treasury yield has soared from 1.50% to 3.75%. Corporate bond yields have jumped from 3.40% to 6.00%. Higher bond yields play out in the form of much higher borrowing rates for consumers, businesses, and homebuyers, which reduce disposable incomes and slow, or even reverse, GDP growth.

But there is a more "direct drive" impact on share prices. Higher inflation lowers the present value of future earnings. For example, a dollar of earnings booked 10 years from now has a present value of $0.82 assuming inflation averages 2% per annum over that decade. Raise the inflation assumption to 4% and the present value of a dollar earned 10 years out drops to $0.67. If current conditions cause inflation expectations to move up in that way, price-to-earnings (P/E) multiples usually fall to reflect the drop in value of future earnings. And at the same time, the higher interest rates that normally come with rising inflation act to raise the discount rate by an additional amount, further squeezing the P/E ratio.

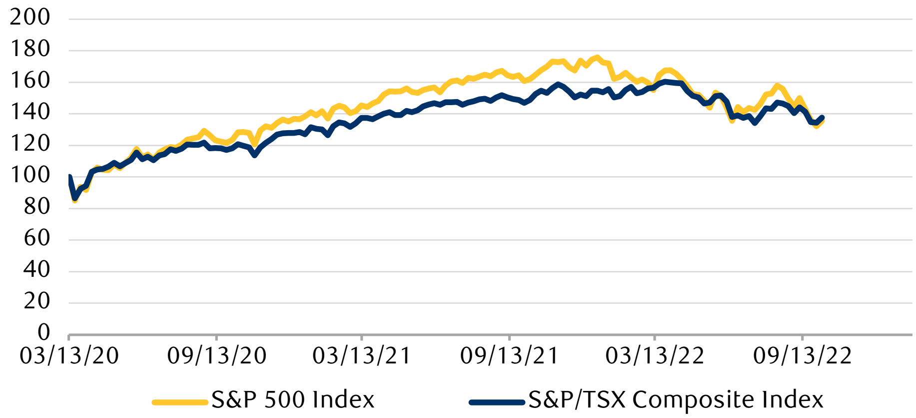
At the peak of the market in January, the S&P 500 traded at 23x trailing 12-month earnings. At the recent low, the P/E multiple had sunk to just 16x.

Perspective called for

All that said, it is worth putting this market retreat of the last nine months into perspective. From the pandemic low in March 2020 to the market peak in early January of this year—a stretch of 21 months—the S&P 500 gained about 2,600 points

GLOBAL EQUITY

Bear market or correction?



Note: Indexed to 100 on 3/13/20

Source - Thomson Reuters; data through 10/3/22

or 118%. Over the past nine months it has given back not quite half of the points gained in that advance. In the same 21 months of rising markets to January of this year, Canada's TSX rose by a more subdued 99% (if one can call it that) but has since given back just over a third of the points gained. Japanese, European, and UK markets all look to be variations on this theme.

So far, in the case of the North American markets, leaving aside the strident headlines, it looks to us very much like a strong bull market up-leg followed by a pretty normal period of correction and consolidation of those gains.

However, while markets are now deeply oversold, it's possible they could become even more so in the coming days and weeks. A sustained equity rally, one with the potential to reach or exceed the old highs, would require a powerful catalyst from here. The one conceivably strong enough, in our view, would be a decisive weakening of inflation on a broad front, putting an early 2023 end to Fed tightening back on the table and pushing bond yields lower in the process.

Is that likely? The answer is, "less so than it would have appeared a couple of months ago"—ironically because of a stronger-than-expected U.S. economy. Q3 GDP growth looks to be running at a better-than-2% (annualized) pace, as the consumer continues to spend, albeit at a somewhat subdued rate.

The employment picture remains highly supportive. Weekly unemployment claims, which were on the rise through the spring and early summer, have been falling steadily since mid-July and are now within striking distance of their cycle lows set back in March (see our U.S. recession scorecard). The Fed is unlikely to back off its rate-hiking agenda in the absence of some decisive weakness on the employment front. No such weakness has as yet materialised.

Near-term relief

There are some particular factors in the current economic/market mix that may give some upside fuel to the equity market:

Extreme investor pessimism. Surveys of equity investor sentiment reveal a large majority of individuals expect markets to decline further. A substantial majority of professional market observers feel the same. Put buying—a strategy that profits only if the market declines—reached extreme levels in late September. Such negative unanimity often occurs near important lows.

At the same time, bond investors are displaying similarly one-sided,

GLOBAL EQUITY

negative opinions about the outlook for bond yields—a sizeable majority expects them to rise even further. History suggests such extreme one-sidedness occurs around peaks in rates. Any reversal downward in bond yields would likely give stock prices an upward boost.

U.S. midterm elections are usually associated with positive equity outcomes. Corrections are common in midterm years, and so are follow-on rallies (see chart).

Some prospects for better inflation readings. Shipping costs are falling, as are the prices of most industrial and many agricultural commodities. In the September ISM Report On Business for the U.S. manufacturing sector, the "prices paid" sub-index had fallen to 51.7% (from close to 90% back in the first half), implying that almost half of the firms surveyed were experiencing declines in average input costs.

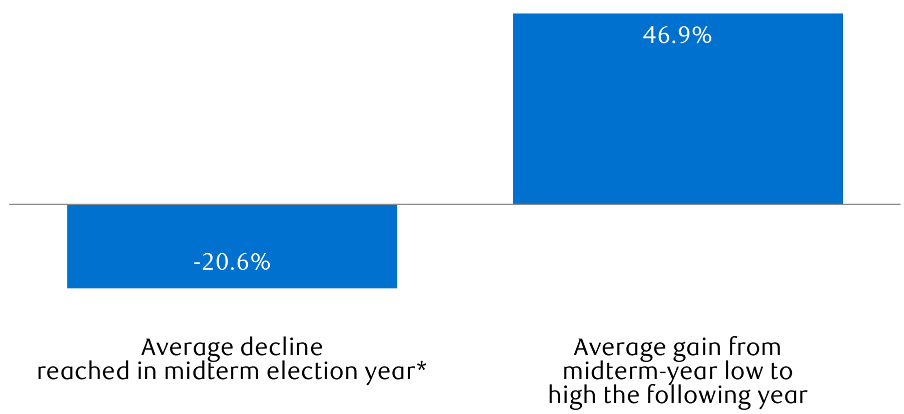
Market Weight exposure

In our view, equity markets have become so deeply oversold over the course of the last nine months that some near-term relief is probably not far off. However, more market turmoil could be expected next year if further Fed tightening were to push the U.S. economy into recession, as now seems likely (see our U.S. recession scorecard). But some portion of any future economic weakness looks to have been priced in over the course of this year's decline.

Taking a 12-to-18-month forward view, we regard an equity exposure of Market Weight as appropriate for a global balanced portfolio.

Corrections are common in midterm years, and so are follow-on rallies

S&P 500 returns surrounding midterm elections (1934 - 2019)



* Measured from the peak within 12 months before the midterm-year low, to that low. In 22 of 23 instances, the low was reached before the midterm election; the exception was in 2018 when it occurred after the election.

Source - RBC Wealth Management, Bloomberg; performance surrounding 22 midterm election years

REGIONAL
Equity

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United States

- The S&P 500 posted new 2022 lows during the quarter after a failed mid-August rally that had been driven by a view that the Fed was ready to engineer a soft landing and slow the pace of interest rate hikes. But this hope was dashed by consistently high inflation readings and a Fed commitment to tame prices even at the cost of short-term damage to the economy.

- Q3 2022 consensus earnings forecasts slowly declined during the quarter, but not as quickly as stock prices. There were two contributing factors: price-to-earnings valuations sank rapidly as interest rates rose, as higher bond yields attracted funds out of equities; and management teams were hesitant to cut guidance given the rapidly changing economic environment. We expect estimates for the rest of the year to fall meaningfully as we get through the Q3 2022 earnings season as management teams update their forecasts, particularly in light of a dramatically stronger dollar.

- The rise in the dollar has been a mixed blessing for U.S. stocks. On the positive side, a stronger dollar has attracted international fund flows into U.S. risk assets such as stocks. On the negative side, the overseas profits of U.S. multinational companies are denominated in falling foreign currencies, and we believe this will provide a 5%–10% headwind to earnings growth in the current quarter. A peak in interest rates and the dollar, and a stabilization in earnings forecasts could provide the clearing events that allow stocks to establish a base for resumed growth.

Canada

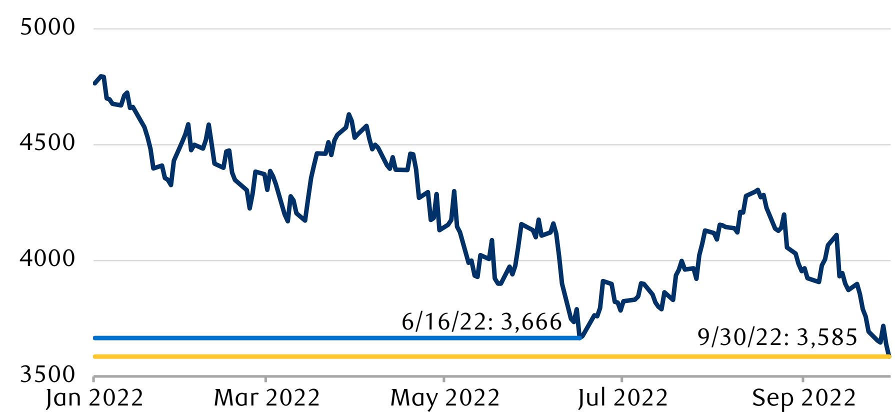
- Expectations for above-average global economic growth in 2022 have long since been dashed as the drumbeat of recessionary fears has taken their place. A host of concerns continues to cloud the outlook, with central banks' efforts to combat high inflation taking centre stage.

- The valuation of the Canadian market remains discounted relative to history as well as to the S&P 500. However, the S&P/TSX Composite's cyclical nature—roughly 30% weight to resource sectors—could be a headwind in a recessionary scenario. Likewise, the profitability of key industries such as the banks (over 20% index weight) is heavily tied to the economic outlook and the corresponding view on credit health. These considerations are increasingly reflected in valuations.

- As for the Energy sector, we believe demand for oil would come under some pressure in a recession, but we are increasingly of the view that supply remains sufficiently tight to place a higher floor under prices throughout an economic downturn. This higher floor may well sustain positive free cash flow

S&P 500 hits new 2022 lows late in September

S&P 500 price level, YTD



Source - RBC Wealth Management, FactSet; data through 9/30/22

REGIONAL EQUITY

for the producers, and, in turn, alongside substantially improved balance sheets, should position the companies well to weather the storm.

Europe & UK

- Our downgrades last month of both the UK and Europe to Underweight from Market Weight reflect what we believe will be a difficult winter for both regions.

- In the UK, the new government has thrown fiscal caution to the wind. An expensive energy support package, worth some 6% of GDP, to cap household energy bills is being accompanied by individual and business tax cuts. These interventions remove important short-term downside risk to economic growth in the short term, but at the cost of a swelling fiscal deficit and a surge in the country's indebtedness. They risk fueling further price pressures at a time inflation is already hot and enticing the Bank of England to respond with still higher interest rates.

- Given the challenging outlook, we maintain our strong preference for internationally-oriented defensive companies. Cyclical companies whose valuations largely reflect the prospect of a recession in the short term but are positioned well for longer-term structural trends, such as the decarbonisation of the economy, may be of interest.

- As for Europe, despite measures to reduce the dependence on Russian gas and energy consumption, energy shortages cannot be ruled out this winter. A recession looms as the energy crisis and the European Central Bank's rate hikes bite.

- We would focus on companies that are highly profitable, cash-generative, and possess leading market positions, strong pricing power, and structural growth prospects. We believe there are opportunities in companies that are well placed as enablers in the green energy transition, particularly in the energy efficiency, electrification, and automation areas.

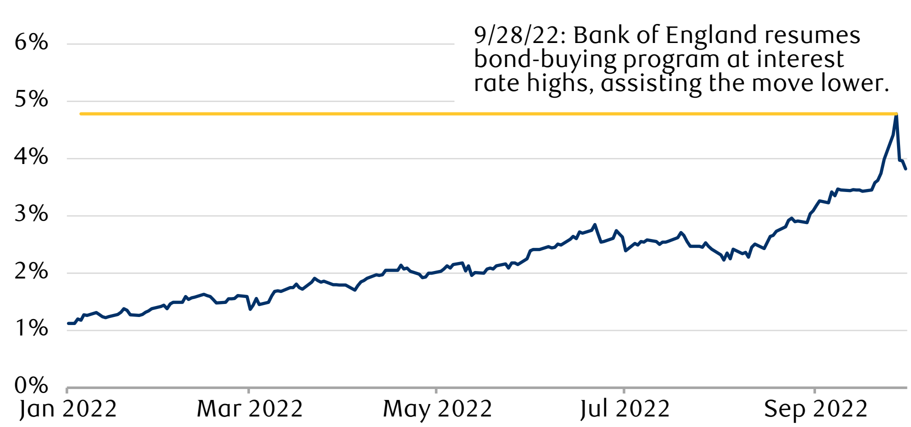
Asia Pacific

- China's August economic data surprised to the upside as policy support kicked in to boost infrastructure and manufacturing activities. Chengdu's COVID-19 lockdowns did not repeat Shanghai's extended lockdown and logistics problems, and were deemed a relative success. However, a sustainable earnings recovery will be challenging without a zero-COVID exit roadmap, in our view.

- A series of important meetings on top leadership changes and the economic policy outlook should start this month. The 20th National Congress of the Chinese Communist Party is expected to elect a new

Bank of England starts buying bonds again to offset fiscal stimulus

30-year UK goverment bond rate, YTD



Source - RBC Wealth Management, FactSet; data through 9/30/22

REGIONAL EQUITY

group of senior leaders, after which we expect better policy coordination and more efficient implementation as personnel changes are settled. We do not expect immediate policy shifts after the Congress, but hope to see greater clarity on future policy direction. As such, we think November may offer a better opportunity to reassess market dynamics.

- There continues to be evidence that Japan's economy is gaining traction from its post-pandemic reopening. Q2 2022 GDP data was revised higher to +3.5% from the better-than-expected and seasonally adjusted +2.2% q/q. While we expect growth to slow in Q3 with the re-emergence of new COVID-19 cases since July, we believe risks to H2 2022 forecasts are skewed to the upside. The current pullback in consumption is smaller than previous waves, household earnings remain very resilient, and supply bottlenecks are easing. However, we will keep a lookout for business sentiment, which is currently on the softer side.

- The Bank of Japan (BoJ) left its ultra-easy monetary policy unchanged, leading USDJPY to the highest level since 1998, benefiting the exporters. Despite growing political pressure, we expect the BoJ to maintain its stance at least until the end of Governor Haruhiko Kuroda's term in April 2023.

- We remain positive on Japan equity in the near term relative to other developed markets. Inbound tourism demand, divergence in monetary policy, yen depreciation, and policy support should underpin performance.

GLOBAL
Fixed income

It's the destination, not the journey

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For much of 2022, the focus has been on the pace of rate hikes and the need to get rates to more restrictive levels sooner rather than later. It was widely assumed that central bankers largely had an idea of what those restrictive rate levels would prove to be in order to have the desired downward impact on inflationary pressures.

But that focus shifted sharply over the course of September as markets and central bankers became increasingly fixated on—and seemingly confounded by—what those levels might actually prove to be this cycle; it doesn't matter how fast you're traveling to your destination if you don't know where it is.

For the Federal Reserve, the market's expectation for the terminal policy rate this cycle has jumped to around 4.75% for October from barely 3.0% in August, with the Fed's updated rate projections at the September meeting also rising to a peak rate of 4.75% from 3.75% as of its June meeting. But at a time when many investors thought the Fed might be closer to pausing rate hikes, fears are only growing that finding that level is going to be a process of "discovery," as Fed Chair Jerome Powell put it at the September meeting, and the significant risk remains that peak rates could be even higher.

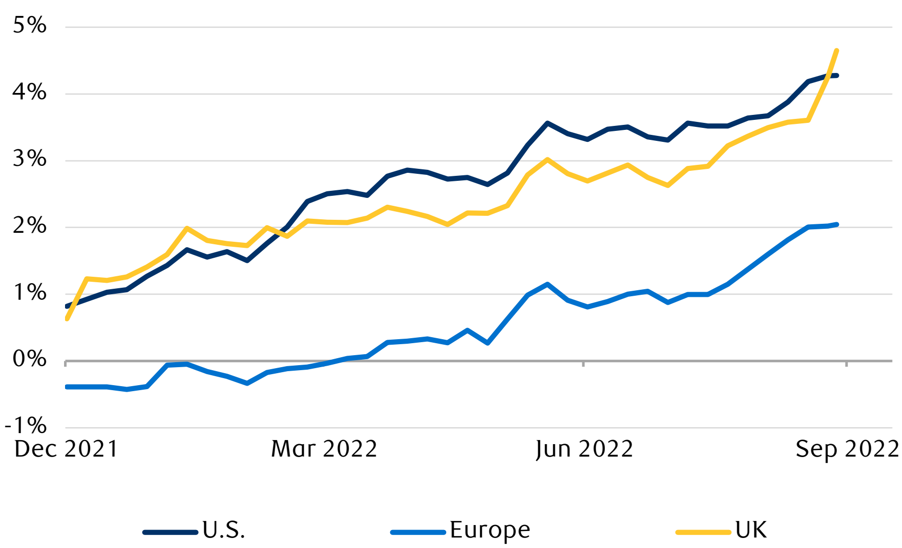
Fixed income views

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

A moving target: Expectations for where key central bank rates will end 2022 have only moved higher over the course of the year

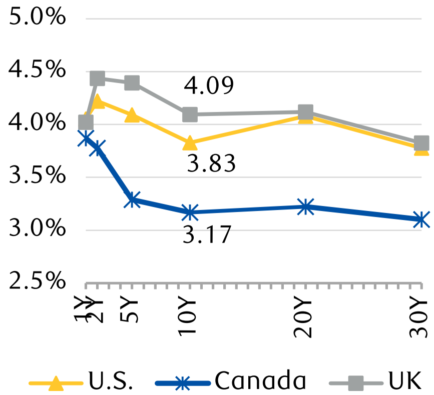
Market expectations for policy rates by December 2022



Source - RBC Wealth Management, Bloomberg; data as of 9/26/22

REGIONAL FIXED INCOME

Sovereign yield curves



Source - Bloomberg; Canadian data through 9/29/22, all other data through 9/30/22

Beyond the U.S., the outlook may be even murkier. In the UK, on the back of a significant tax cut and energy price cap package announced in September aimed at boosting growth at a time of elevated inflationary pressures and ongoing labor and supply shortages, markets are looking for the Bank of England to act in kind with greater rate hikes to not only cool overheating risks, but to also support the currency. Since the announcement, markets are primed for at least 100 bps more policy tightening this year than was expected only recently. In Europe, peak rate expectations for next year have nearly tripled in recent months, with rates seen heading north of 3%, from barely 1%.

So as central banks continue to accelerate on this journey to higher interest rates, the risk that they miss their exit and overtighten monetary policy is likely to keep volatility elevated into Q4 2022 and until markets have more clarity on where exactly central banks are going.

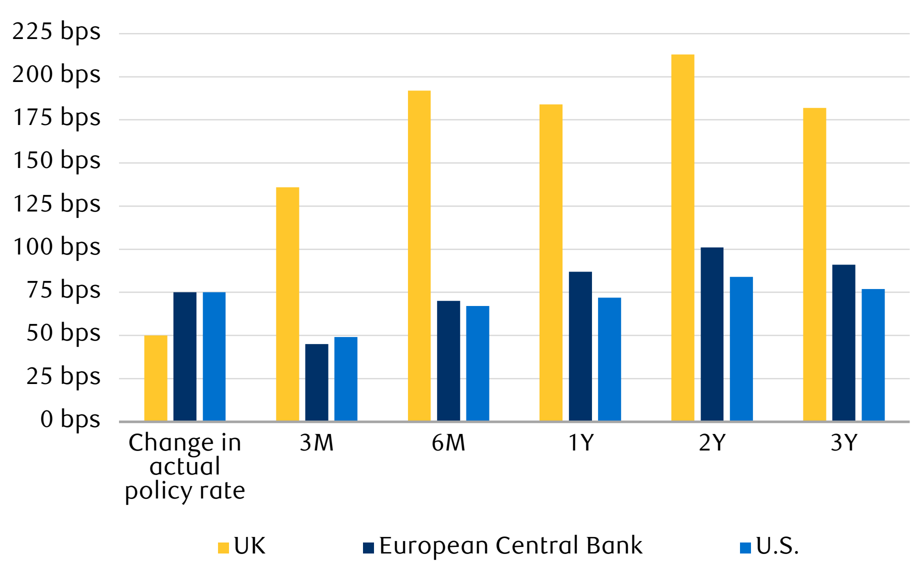
Regional highlights

United States

- The Federal Reserve delivered both a third 75 basis point (bps) rate hike, to a policy rate range of 3.00%–3.25% in September, and a supercharged rate hike outlook that has rates peaking around 4.75% next year. Will that level be enough? Despite the Fed already raising rates by 300 bps this year, and more in the pipeline, 17 of the 19 policymakers still judged the risks of inflation as being to the upside, a worrying sign that there is still little confidence on the inflation outlook, while raising the possibility the Fed may have to take rates even higher than is currently expected.
- Even as policymakers remain concerned about the inflation outlook, the market does not. Since peaking at 4.9%, market-based inflation expectations over the next two years have plunged to just 2.2%, suggesting the Fed will ultimately succeed in bringing inflation down. As a result, inflation-protected Treasuries (TIPS) have lagged nominal Treasuries over that time span with a 9.0% drop in the former compared to a 6.5% pullback in the

Amid uncertainty in the UK, markets are now pricing in higher rates

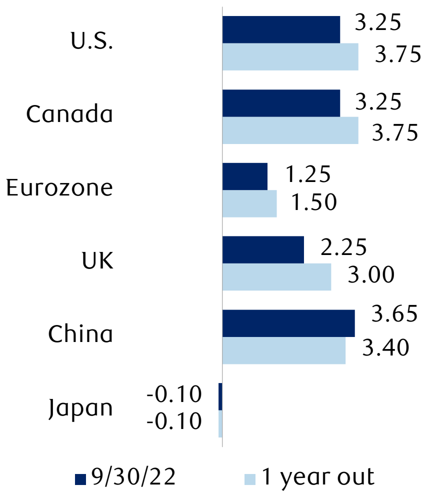
Change in market-based policy rate expectations over the course of September



Source - RBC Wealth Management, Bloomberg; change in market pricing between 9/1/22 and 9/27/22

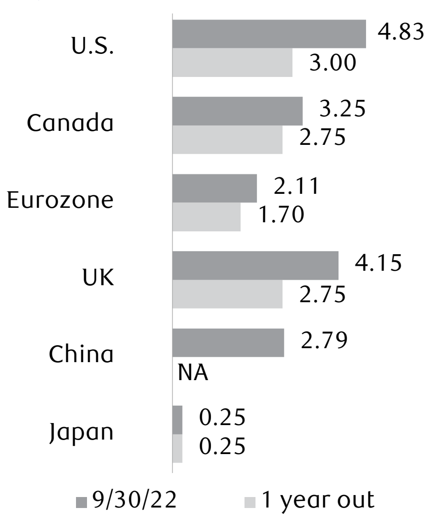
REGIONAL FIXED INCOME

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

latter, based on Bloomberg Indexes. We have held a negative outlook on TIPS since February, and maintain that outlook amid an aggressive Fed rate hike campaign.

■ We also continue to hold a modestly negative outlook for U.S. corporate bond markets even as the average yield on the Bloomberg US Corporate Bond Index has jumped to the highest levels since 2009 at 5.5%. Of that yield, only 1.5% comes in the form of yield compensation over comparable Treasury yields for associated credit risks, which is still too little, in our view, given heightened recession risks into 2023. We still hold a favorable outlook for bank-issued fixed-to-float hybrid preferreds which maintain strong credit quality, and should hold on reasonably well in a rate environment such as this.

Canada

■ After moving lower throughout the second half of June and most of July, bond yields regained their upward momentum in August as central bankers doubled down on their hawkish message, reiterating commitments to the inflation fight and leaving the door wide open for additional hikes at upcoming meetings. This reignited hawkish rhetoric has lifted short-term rates above their June peaks and toward some of their highest levels since 2007.

■ Despite the continued global commitment to bringing inflation lower through the tightening of financial conditions, the pace of rate hikes could start to decelerate as central bankers begin to evaluate the economic impact of the multiple hiking rounds that have already been delivered. After a fifth consecutive rate hike in September, the Bank of Canada has so far lifted its key policy rate by a total of 300 basis points to 3.25%, placing the overnight rate in restrictive territory and at its highest level since 2008.

■ The combination of tighter financial conditions, surging inflation, lingering geopolitical risk, and brewing recessionary worries has continued to exert pressure on risk assets, raising the yield compensation for assuming the credit risk inherent in corporate bonds to the highest level since 2020. Together, rising rates and wider credit spreads have led to some of the most compelling bond yields in over a decade, in our view. We think short-to-mid-maturity investment-grade discounted bonds remain the lowest hanging fruit for yield pickup. Our decision to extend duration will continue to be guided by evolving views regarding inflation and economic growth.

Europe & UK

■ European Central Bank (ECB) President Christine Lagarde recently implied that interest rates could be another 150–200 basis points (bps) higher than current levels, thus shifting the terminal rate higher to a 2%–3% range, according to economists' estimates. ECB staff inflation forecasts remain above target until late 2024; therefore, the market is pricing in a higher peak policy rate of 3% by Q3 2023. Despite a widely expected European recession this winter, we think the ECB will hike at the expense of growth, and we expect the deposit rate to reach 2% at the end of 2022, in line with the market consensus.

■ We maintain our Underweight view toward lower-rated sovereigns in the region and prefer to allocate to other nations where supply dynamics and spreads are favourable.

■ In the UK, the government's latest Growth Plan, which involves unfunded tax cuts, threatens long-term debt sustainability. It has engendered further weakness in the pound, which should add upward pressure on inflation through pricier imports. Bank of England (BoE) Governor Andrew Bailey doused cold water on a possible emergency hike to support the currency, instead reiterating the September BoE statement—the full

REGIONAL FIXED INCOME

fiscal implications of the energy bill's price cap freeze and the tax cuts will be assessed at the central bank's Nov. 3 meeting. However, the BoE did intervene to restore orderly market conditions in Gilts through targeting purchases in longer maturities until mid-October. The Bank stated that its planned sale of government bonds, otherwise known as quantitative tightening, had been delayed until the end of October. The intervention calmed the rout in bond markets.

- Unfortunately, the root cause of the problem, which is the loss of confidence in UK fiscal policy, will not be addressed by this intervention. Therefore, we see increased pressure on Gilt yields and the pound in the near term.

- We view current market expectations of a 6% terminal Bank Rate in March 2023 as excessive, given the BoE has not been as aggressive as other central banks so far, and project a 4.25%–4.5% range.

- In both the UK and Europe, we prefer shorter-duration, higher-quality, and non-cyclical corporate issuers. Against a more challenged backdrop in the UK, we prefer non-domestic issuers.

Asia Pacific

- Asia credit has seen significant price adjustments this year. The region continues to face the challenge of macro headwinds, such as the slowdown of global manufacturing Purchasing Managers' Indexes, central banks battling inflation at the expense of growth, and Europe's escalating energy crisis.

- China, Asia's largest economy, has its own set of challenges. In addition to an already deep property crisis, it also faces weaker consumption, power shortages, and, most recently, a slowdown in exports ahead of the crucial holiday season due to softening demand from Europe and the U.S.

- In August, however, China high-yield credit enjoyed a relief rally thanks to the performance of a handful of names. Since then, China high-yield credit has been range-bound amid rates volatility and mixed headlines.

- Since August, China policymakers' stance toward the property market has changed, with the introduction of more targeted measures to ensure the completion of building projects and developers' access to financing. In September, President Xi Jinping approved plans to relax home-buying restrictions in all cities in an effort to boost demand. In the onshore bond market, state-guaranteed property sector issuance has been launched, and we expect it to expand.

- While we welcome a more supportive policy, it is likely more measures will be needed for a sustained recovery. September new home sales have been weak so far despite policy stimulus, and the operating environment remains challenging for most China residential developers. Given September to October is the traditional peak season, which typically accounts for almost 20% of annual contracted sales, we think an increase in home sales will be crucial for the sector and wider China economy.

- We continue to believe investors should choose good quality investment-grade bonds over high-yield bonds.

Commodities

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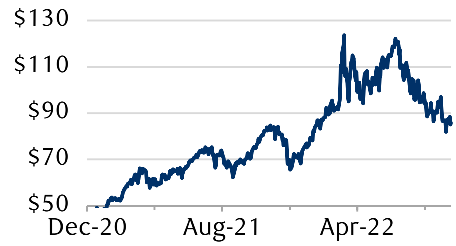
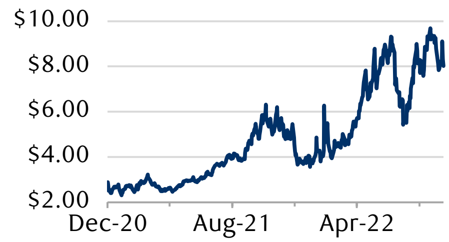
Crude oil: Pullback

While elevated inflation has partially fueled the rally in oil so far, the narrative has shifted towards a focus on the slowing economic backdrop. As a result, oil prices have softened but remain in positive territory on the year. RBC Capital Markets notes that while financial market pricing has retraced, physical market demand remains healthy.



Natural gas: Limited

U.S. natural gas prices have more than doubled in 2022, driven in part by the European energy crisis. U.S. inventories are also low by historical standards, and are on pace to end the year below their five-year average. However, U.S. liquefied natural gas facilities are running at around 96% utilization, thus we believe near-term upside is likely limited.

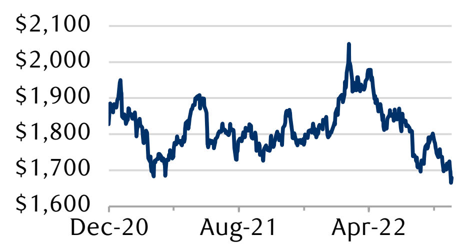


Copper: Correcting

Slowing global manufacturing, softening property fundamentals, and China's zero-COVID policy continue to put downward pressure on copper prices. Consensus estimates have the Chinese economy slowing markedly in 2022. Given that China represents about 50% of global demand, we expect copper to remain volatile over the medium term.

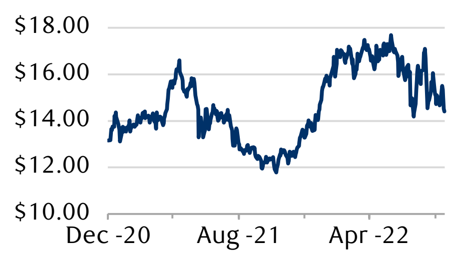
Gold: Challenging

While gold has outperformed the S&P 500 Index year to date, we believe the outlook is challenging given the Federal Reserve will likely continue down the path of aggressive rate hikes; the August U.S. inflation reading came in above consensus expectations, reinforcing the need for tighter monetary policy. All else equal, we believe prices are biased downward.



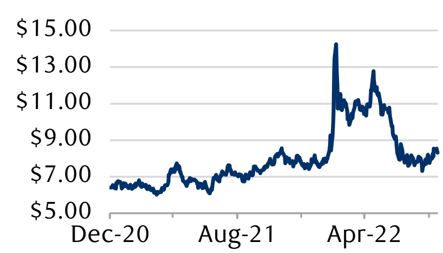
Soybeans: Lower

Like most other crops, soybean prices have pulled back from their year-to-date highs. On the back of lower-than-expected U.S. production and lower yields in major producing nations, the USDA revised its global production forecasts for the 2022/23 season modestly downward. We expect soybean prices to ebb and flow with the global economic growth outlook.



Wheat: Moderating

Global wheat prices have moderated since the March 2022 highs but are still up about 8% year to date. On top of tight labour conditions and rising energy costs, prices of wheat-based products such as cereal have increased by about 11% y/y, according to the USDA. Global consumption is also expected to edge up slightly, offset by a modest increase in ending inventories.



Commodity forecasts

Commodity	2022E	2023E
Oil (WTI $/bbl)	$107.57	$114.00
Natural gas ($/mmBtu)	$5.53	$4.65
Gold ($/oz)	$1773	$1615
Copper ($/lb)	$4.28	$3.75
Soybeans ($/bu)	$6.98	$6.23
Wheat ($/bu)	$9.20	$8.43

Source - RBC Capital Markets forecasts (oil, natural gas, gold, and copper), Bloomberg consensus forecasts (soybeans and wheat); data as of 9/21/22

Chart source - RBC Wealth Management, Bloomberg; date range: 12/1/20–9/16/22

Currencies

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Currency forecasts

Currency pair	Current rate	Forecast Oct. 2023	Change
Major currencies			
USD Index	112.12	105.63	-6%
CAD/USD	0.72	0.75	4%
USD/CAD	1.38	1.34	-3%
EUR/USD	0.98	1.05	7%
GBP/USD	1.12	1.17	4%
USD/CHF	0.99	0.88	-11%
USD/JPY	144.74	139.0	-4%
AUD/USD	0.64	0.68	6%
NZD/USD	0.56	0.64	14%
EUR/JPY	141.88	146.0	3%
EUR/GBP	0.88	0.90	2%
EUR/CHF	0.97	0.92	-5%
Emerging currencies			
USD/CNY	7.12	6.95	-2%
USD/INR	81.35	79.00	-3%
USD/SGD	1.44	1.38	-4%

Change is defined as the implied appreciation or depreciation of the first currency in the pair quote. Examples of how to interpret currency data can be found in the Market Scorecard.

Source - RBC Capital Markets forecasts, Bloomberg

U.S. dollar: Moderate gains ahead

The U.S. Dollar Index (DXY) has rallied by about 15% since the start of 2022, driven by the Federal Reserve's aggressive interest rate hikes and by demand for the perceived safety of the greenback as equity markets have weakened. The outlook for Q4 hinges on the timing of a peak in the federal funds rate, which continues to shift higher due to stubborn U.S. inflation data. RBC Economics sees DXY peaking in early 2023, with yields stabilizing and ultimately pulling back.

Euro: Headwinds from reliance on energy imports

The EUR/USD pair breached parity despite the European Central Bank (ECB) having hiked interest rates by 125 basis points so far in 2022. The key drivers of the euro's weakness have been the surge in energy prices and eurozone countries' reliance on energy imports, which have reduced the ECB's capacity to raise rates. While there are proposed measures to address the region's energy crisis, the severity of winter is likely to affect the euro's performance in Q4.

Canadian dollar: Further tightening required

The Bank of Canada (BoC) took the overnight rate to 3.25% in September, above the 2%–3% range it considers neutral. The retreat in crude oil prices to $80 per barrel and a generally weaker risk sentiment in equities weighed on the loonie in Q3. We look for the CAD/USD pair to trade in the high 0.76s at the end of 2022, with RBC Economics expecting the BoC to be as aggressive as the Fed in hiking interest rates and both central banks' policy rates at 4% in Q4.

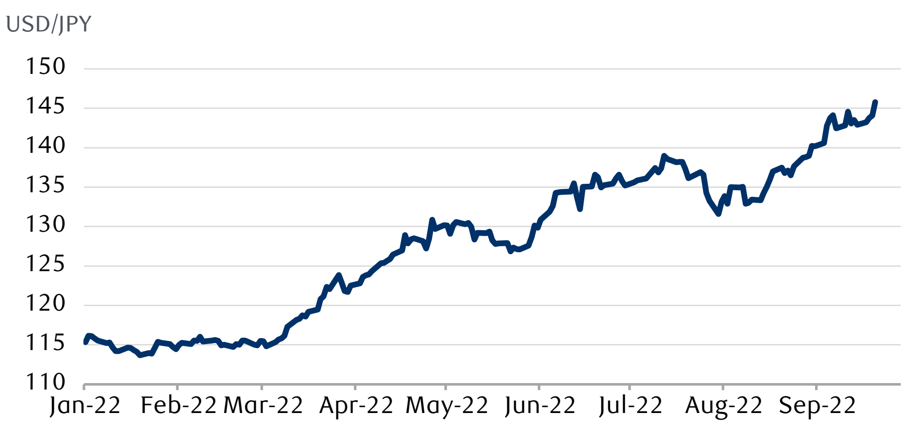
British pound: All-time lows against U.S. dollar

The GBP/USD pair fell to a low near 1.0350 following the announcement of the biggest tax cuts in the UK since 1972. The sharp drop reflected a loss of fiscal credibility, with investors worried about Britain's already-sizable debt burden. RBC Economics analysts believe the UK's gaping imbalances are set to get worse, and see further weakness in the GBP/USD pair in the longer term. In the near term, however, we could see some consolidation in a wide range of around 1.04–1.14, with the pound recovering after the Bank of England intervened in the Gilt market.

Japanese yen: Japan intervenes to support currency

The USD/JPY pair has rallied by about 20% in 2022, and when it breached 145, the Japanese government intervened in the foreign exchange market to prop up the yen. However, RBC Economics believes the intervention will only briefly interrupt the trend higher in the pair, unless it is accompanied by lower Fed interest rate expectations and/or a tightening of monetary policy from the Bank of Japan.

Japanese government stepped in to prop up the yen for the first time since 1998 after USD/JPY breached 145



Source - RBC Wealth Management, Bloomberg; data through 9/22/22

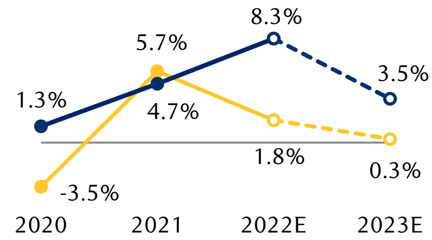
KEY
Forecasts

Real GDP growth

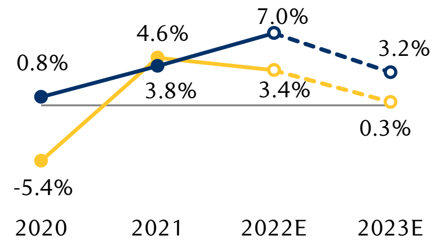
Inflation rate

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

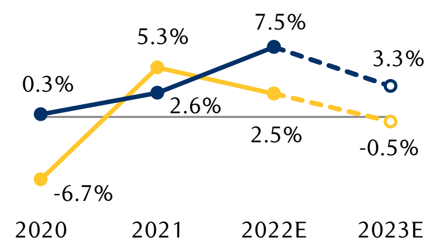
United States



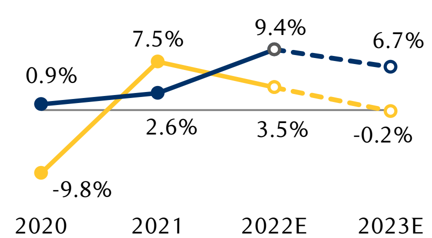
Canada



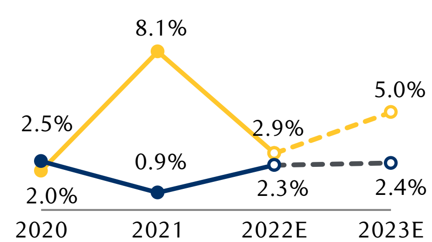
Eurozone



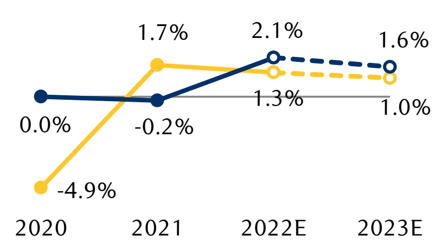
United Kingdom



China



Japan



Market scorecard

Data as of Sept. 30, 2022

Equities

September proved to be another challenging month for global equity markets as the Hang Seng, Russell 2000, Nasdaq, and S&P 500 all sold off.

Bond yields

Continued financial market turmoil and fears of a global recession drove global bond yields higher in September.

Commodities

Commodity trading was mixed with natural gas, oil, and gold falling, while silver prices rose.

Currencies

The dollar rallied against all the major currencies, including the euro where the greenback regained its footing and is outperforming the European currency.

Index (local currency)	Level	1 month	YTD	12 month
S&P 500	3,585.62	-9.3%	-24.8%	-16.8%
Dow Industrials (DJIA)	28,725.51	-8.8%	-20.9%	-15.1%
Nasdaq	10,575.62	-10.5%	-32.4%	-26.8%
Russell 2000	1,664.72	-9.7%	-25.9%	-24.5%
S&P/TSX Comp	18,444.22	-4.6%	-13.1%	-8.1%
FTSE All-Share	3,763.48	-6.1%	-10.6%	-7.3%
STOXX Europe 600	387.85	-6.6%	-20.5%	-14.7%
EURO STOXX 50	3,318.20	-5.7%	-22.8%	-18.0%
Hang Seng	17,222.83	-13.7%	-26.4%	-29.9%
Shanghai Comp	3,024.39	-5.6%	-16.9%	-15.2%
Nikkei 225	25,937.21	-7.7%	-9.9%	-11.9%
India Sensex	57,426.92	-3.5%	-1.4%	-2.9%
Singapore Straits Times	3,130.24	-2.8%	0.2%	1.4%
Brazil Ibovespa	110,036.79	0.5%	5.0%	-0.8%
Mexican Bolsa IPC	44,626.80	-0.7%	-16.2%	-13.2%
Bond yields	**9/30/22**	**8/31/22**	**9/30/21**	**12 mo. chg**
U.S. 2-Yr Tsy	4.279%	3.493%	0.276%	4.00%
U.S. 10-Yr Tsy	3.829%	3.193%	1.487%	2.34%
Canada 2-Yr	3.791%	3.651%	0.530%	3.26%
Canada 10-Yr	3.173%	3.118%	1.509%	1.66%
UK 2-Yr	4.232%	3.021%	0.410%	3.82%
UK 10-Yr	4.093%	2.801%	1.022%	3.07%
Germany 2-Yr	1.759%	-0.601%	-0.689%	2.45%
Germany 10-Yr	2.108%	-0.185%	-0.199%	2.31%
Commodities (USD)	**Price**	**1 month**	**YTD**	**12 month**
Gold (spot $/oz)	1,660.61	-2.9%	-9.2%	-5.5%
Silver (spot $/oz)	19.03	5.8%	-18.4%	-14.2%
Copper ($/metric ton)	7,647.00	-2.1%	-21.1%	-14.1%
Oil (WTI spot/bbl)	79.49	-11.2%	3.2%	5.9%
Oil (Brent spot/bbl)	87.96	-8.8%	13.1%	12.0%
Natural Gas ($/mmBtu)	6.77	-25.9%	81.4%	15.3%
Agriculture Index	476.74	0.1%	7.5%	14.9%
Currencies	**Rate**	**1 month**	**YTD**	**12 month**
U.S. Dollar Index	112.1170	3.1%	17.2%	19.0%
CAD/USD	0.7231	-5.1%	-8.6%	-8.3%
USD/CAD	1.3829	5.3%	9.4%	9.1%
EUR/USD	0.9802	-2.5%	-13.8%	-15.4%
GBP/USD	1.1170	-3.9%	-17.5%	-17.1%
AUD/USD	0.6400	-6.5%	-11.9%	-11.4%
USD/JPY	144.7400	4.2%	25.8%	30.1%
EUR/JPY	141.8800	1.6%	8.4%	10.1%
EUR/GBP	0.8775	1.4%	4.3%	2.1%
EUR/CHF	0.9674	-1.6%	-6.8%	-10.3%
USD/SGD	1.4353	2.7%	6.4%	5.7%
USD/CNY	7.1160	3.3%	12.0%	10.4%
USD/MXN	20.1382	0.0%	-1.9%	-2.4%
USD/BRL	5.4155	4.5%	-2.9%	-0.5%

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 0.72 means 1 Canadian dollar will buy 0.72 U.S. dollar. CAD/USD -8.3% return means the Canadian dollar has fallen 8.3% vs. the U.S. dollar during the past 12 months. USD/JPY 144.74 means 1 U.S. dollar will buy 144.74 yen. USD/JPY 30.1% return means the U.S. dollar has risen 30.1% vs. the yen during the past 12 months.

Source - RBC Wealth Management, RBC Capital Markets, Bloomberg; data through 9/30/22

Research resources

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