

Scenarios for inflation

BROUGHT TO YOU BY THE MULTI-ASSET SOLUTIONS TEAM

2021 MARKET OUTLOOK

This topic was explored with our investment teams across the New York Life Investments' platform, including Ausbil, CANDRIAM, Goldpoint Partners, MacKay Shields, Madison Capital Funding, NYL Investors, and Tristan Capital Partners. Particular gratitude is due to Steven Friedman and Michael DePalma of MacKay Shields, who provided extensive input.

Executive summary

- Inflation impacts investor portfolios via asset class performance and by acting as a tax on returns. Its emergence has become a key risk for investor portfolios.
- Supply-demand imbalances and an accommodative monetary and fiscal backdrop have been driving the strongest medium-term inflation outlook in some time. However, the evidence so far suggests that supply-demand imbalances are likely temporary and that underlying inflationary pressures will firm only modestly in the coming years.
- Substantial uncertainties remain in the wake of an unprecedented crisis. We explore three plausible inflation scenarios and share asset allocation ideas for each.
- We use the United States as a benchmark for our scenarios, but view the trends driving inflation outcomes to be similar for many countries.

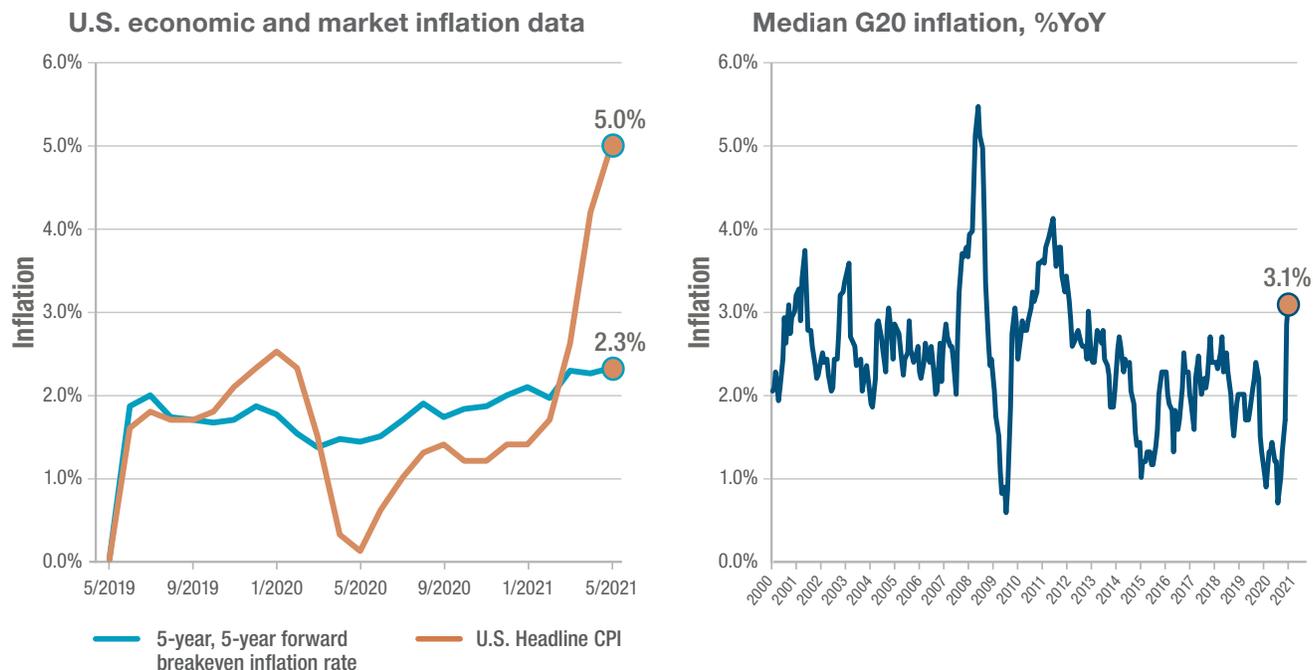


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As the economic recovery gains traction, inflationary pressures are building, and markets are responding.

On the one hand, this is a normal part of a healthy economic cycle: production declines during downturns, only to face growing resource constraints as demand rebuilds over the course of an expansion. On the other hand, the COVID-19 cycle has been unprecedented in many ways, raising an important question for investors: could inflationary pressures be here to stay?

Inflation and inflation expectations have firmed somewhat



Sources: New York Life Investments Multi-Asset Solutions, Bloomberg LP, 6/23/21. As of publication, G20 inflation data is for May 2021 for 19 out of 20 countries and April 2021 for one country.

In our view, the answer is likely to be no. It's one thing to experience a price adjustment on the back of an unusual crisis with significant supply chain disruptions and sizable policy support; it's quite another to have durable price pressures, which is a more complex process. Still, risks to this perspective are plentiful. The pace of labor market tightening and the path of monetary and fiscal policy are yet unknown and will determine the pace of inflation in the years ahead.

Given the importance of this discussion to asset allocation, security selection, and take-home returns,⁶ it is a worthwhile exercise to consider what would happen if data develops differently than we expect from here. In this piece, we focus on the three most likely scenarios and provide asset allocation ideas.

6. Since 1972, inflation has eaten away at 40%-50% of returns, largely due to the high and volatile inflation of the 1970s. During the more recent benign inflation environment, which started in 1998, inflation has still eaten away at 20%-25% of returns across asset classes. Sources: Michael DePalma and Michael Ning of MacKay Shields, Bloomberg LP, 6/21/21.

Using the U.S. as a blueprint for global trends

Our scenarios are predominantly shaped by two drivers—monetary and fiscal policy—which influence the pace at which the output gap closes and maximum employment is reached. By both measures, U.S. action through the COVID-19 pandemic has been stronger than in other areas of the world; for this reason, we use it as the blueprint for our inflation scenarios. The country’s accommodative policy stance, should it continue, could lead to a sustained positive output gap and, with it, pressure on resource allocation and prices.

Many of the trends seen in the U.S. can be used to describe circumstances in other countries. For example, many central banks have acknowledged treating inflation risks asymmetrically, focusing too much on preventing inflation overshoots at the expense of growth and employment. To address this perceived imbalance, many central banks are in the process of changing or have already changed their strategies—tolerating or even encouraging inflation in exchange for a stronger economy and higher employment. Some central banks may choose to react with incremental changes; others with more extensive ones, influencing the likelihood of our inflation scenarios for different countries.

Similarly, most governments loosened the fiscal reins, at least temporarily, in the name of fighting an unprecedented crisis. Automatic stabilizers and COVID-19 support packages have gone a long way to prevent a worst-case scenario for businesses and households. Should fiscal accommodation continue in the years ahead, its impact on aggregate demand and employment could lead to more sustained supply pressures. Those countries unwilling or unable to sustain fiscal support may experience less inflationary pressure.

With these drivers in mind, we focus on the U.S. in the following analysis, but we view trends as broadly similar in many other countries, albeit of a differing magnitude.

Our base case: inflationary pressures firm modestly

In the U.S., recovery from the COVID-19 pandemic is well underway as vaccinations continue and health-related restrictions ease. Aggregate demand has strengthened, aided by monetary policy’s favorable impact on financial conditions and fiscal policy’s support of household and business balance sheets. At the same time, supply is constrained—both in terms of restarting production after large-scale shutdowns, as well as labor shortages due to ongoing virus safety and childcare constraints, and, in some cases, the extension of federal unemployment insurance benefits.

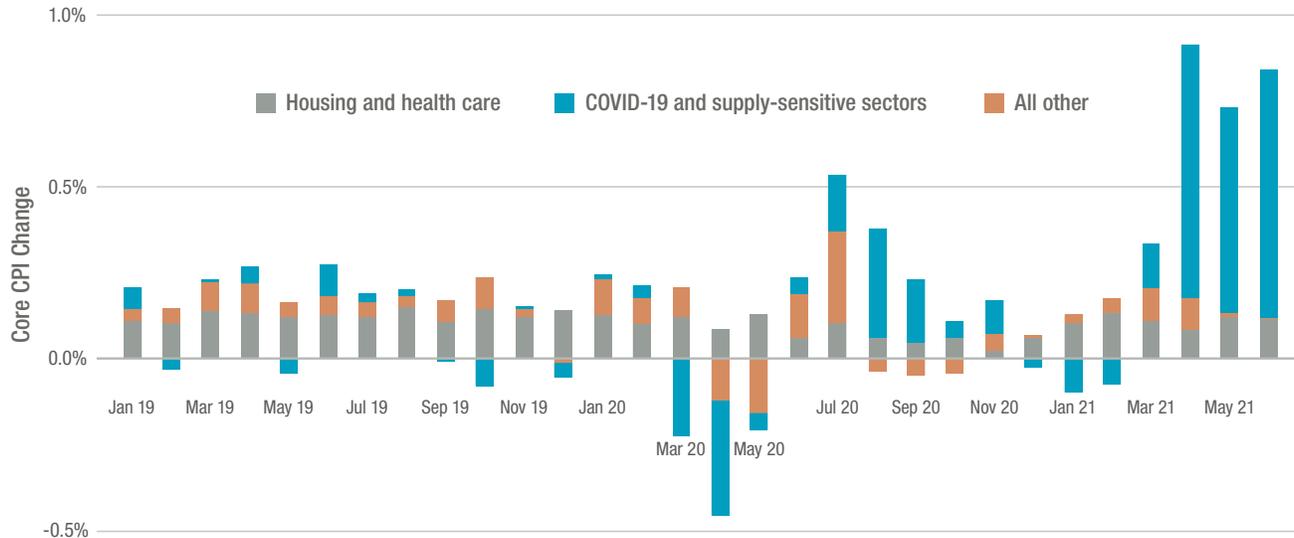
The resulting supply-demand imbalances have already created upward price pressure. Certainly, the size of these imbalances and their impact has been exceptional in the near term—much like many aspects of the COVID-19 crisis. It takes time for global supply chains to come back online and for the labor market to mobilize.

Prices have already responded to these imbalances—rising inflation figures have surprised to the upside in recent months—but evidence does not yet point to inflationary pressures beyond temporary supply-demand imbalances. Instead,

we expect that growth and consumption will revert to more typical patterns once the reopening surge passes, while on the supply chain, production picks up, bottlenecks are cleared, and labor force participation climbs. In fact, there may already be evidence of inflationary pressures waning. Oft-cited examples of surging inflation such as lumber and used car prices appear to have peaked or may soon do so.⁷

Outside of the sectors facing temporary supply-demand imbalances, there is not much evidence of inflationary pressure

Contribution to month-on-month core CPI change (United States)



Sources: MacKay Shields, Bureau of Labor Statistics, 7/13/21. COVID-19 and supply-sensitive sectors include lodging away from home; airfare; apparel; new, used, and rental vehicles; recreational goods and services; and household furnishings.

That said, we have reason to believe that inflationary pressures could firm at modestly higher levels relative to the pre-pandemic expansion.

During the post-global financial crisis (GFC) recovery, tighter financial conditions, Fed concern about inflation, and fiscal austerity contributed to an unusually long labor market recovery. Banks, companies, and households struggled to rebuild their balance sheets. Sluggish growth and inflation became the norm.

By contrast, the policy response to the COVID-19 health and economic crisis has been sizable and swift, even generating concerns about overheating and inflation risk. For one, fiscal policy has taken a stronger role, stepping in to support companies and households through zero-revenue and periods of unemployment. The U.S. Federal Reserve’s response was also prompt and meaningful, with programs designed to maintain smooth market functioning and give corporations access to needed capital, bridging the liquidity gap created by the pandemic. What’s more, the Fed’s new policy strategy framework, which prioritizes maximum employment alongside a more balanced perspective of inflation risks, may result in monetary accommodation that extends for longer, supporting growth further.

7. As of 6/23/21, lumber prices, while still above their five-year average, were down nearly 48% from their May 7 peak. Used car prices, as tracked in the Manheim U.S. Used Car Survey, showed a similar dynamic—still growing but at a less rapid pace.

As a result, we expect a quicker, stronger, and more durable economic recovery. However, we anticipate that price pressures will firm only moderately relative to their pre-pandemic growth rates. In the near term, resurging demand and restrained supply may persist for some time, but an uncontrolled inflation spiral seems unlikely. Despite the Fed’s framework shift—one that should sustain recovery by not preemptively tightening interest rates—the central bank has demonstrated only a modest tolerance for inflation above their 2.0% target, and remains attentive to the risks associated with higher inflation. The Federal Open Market Committee’s (FOMC) June meeting, perceived as hawkish, reinforced its inflation-fighting credentials and reduces the risk that it will have to make sharper policy adjustments down the road to re-anchor expectations.

In addition, structural disinflationary forces should regain their dominance once pandemic-related disruptions fade (see below). Supply constraints are already starting to ease, fiscal stimulus will soon fade, and pent-up demand is not open-ended.

While the COVID-19 pandemic has undoubtedly impacted the *cyclical* factors driving inflation, the crisis and its accompanying policy response may also be nudging the *structural* factors impacting inflation.

The structural factors impacting inflation

	Demographics	Globalization	Inequality	Debt	Technology
Previous impact on inflation	⋏⋏⋏	⋏⋏⋏	⋏⋏⋏	⋏⋏⋏	⋏⋏⋏
Pandemic impact	Pandemic drove significant decline in labor force participation; this should be temporary.	Attention to supply gaps in essential products may drive supply chain fortification	Wealth inequality pernicious, but income inequality could be improved by government transfers	Rising government debt crowds out private sector	Accelerated uptake of and investment in innovation
Post-pandemic impact on inflation	≡	⋏⋏⋏	≡	⋏⋏⋏	⋏⋏⋏
Look for	Immigration reform to improve demographics Policies such as affordable childcare to improve labor force participation	Stronger trade barriers could increase price pressures	Maximum employment and higher wages would support higher aggregate demand Redistributive tax policies could improve inequality	Tax changes and related proactive savings could reduce aggregate demand	Productivity improvements contribute to stronger growth, but lower unit labor costs.

Our estimation of these structural factors suggests that the underlying inflation trend will firm only modestly as the recovery continues. To reverse these disinflationary forces, large-scale policy commitments—and durable ones—would likely be required. As a result, policy commitments to improving education, immigration, and labor force participation are signposts to monitor for a shift in the underlying inflation trends. Redistributive policies aimed at addressing inequality could also move the needle. For now, any determination that they will be inflationary beyond the next 2-3 years' recovery period remains somewhat speculative.

What could be different? Scenarios for post-crisis inflation

Having reflected on our base case views, we also recognize a heightened degree of uncertainty about the inflation outlook. This stems from a confluence of factors, namely an economy and labor force that are likely to have been reshaped by the pandemic in ways that are still not fully understood; a central bank that is willing to accept higher inflation in exchange for a strong labor market; and expansionary fiscal policy that will also reallocate resources towards lower- and middle-income households.

As such, we will be closely monitoring the path of inflation moving forward. The two other scenarios we perceive as most likely are:

A return to lowflation: In this scenario, the disinflationary forces that prevailed pre-pandemic reassert themselves. The Fed's new reaction function proves "evolutionary, not revolutionary"—too modest to move the needle on inflation over the medium term and inflation expectations recede from their current levels. Further fiscal spending faces substantial headwinds due to a gridlocked Congress and concerns about rising national debt levels.

Prolonged higher inflation: In this scenario, the Fed misjudges accelerating inflationary pressures and contributes to the firming of inflation expectations at higher levels. A fiscal policy agenda that favors prolonged deficit spending in support of lower- and middle-income households results in stronger aggregate demand on a sustained basis, while discouraging labor force participation and increasing labor costs. A lack of progress in vaccine campaigns in emerging markets leads to more persistent supply chain bottlenecks. Stronger worker bargaining power results in a price-wage spiral, with higher labor costs passed along to consumers given weak productivity growth. Inflation expectations become unanchored. A change in Fed leadership could also play a role in this scenario if Chair Powell is replaced by a more dovish official when his term expires next February.

Scenarios for post-pandemic inflation⁸

These scenarios reflect inflation targets for the 2-3 year period starting mid-2022 after consensus expects supply-demand imbalances to have faded.

	Return to lowflation	Base case scenario: moderate inflation	Prolonged higher inflation
Scenario	<ul style="list-style-type: none"> ■ After a year of supply-demand imbalances, the disinflationary forces that prevailed pre-pandemic reassert. ■ Inflation remains durably below the Fed's 2% Core Personal Consumption Expenditure (PCE) target. 	<ul style="list-style-type: none"> ■ Policy support results in stronger growth and employment outcomes in the post-pandemic economy. ■ Inflation is sustained between 2%-3.5% for years after the crisis. 	<ul style="list-style-type: none"> ■ Policy response overshoots crisis needs and shifts structural forces impacting price pressures. ■ Inflation exceeds 3.5%.
Probability	30%	60%	10%
Assets class preference	<ul style="list-style-type: none"> ■ U.S. large-cap equity ■ Growth equity ■ Core fixed income, including U.S. Treasuries and credit ■ Favor middle market in private debt and private equity ■ Core real estate debt and equity 	<ul style="list-style-type: none"> ■ International developed equity ■ Cyclical and value equity sectors ■ U.S. small-cap equity ■ Value and income-focused equity ■ Listed infrastructure ■ Private equity ■ Liquid alternative assets (hedge funds, mergers, and acquisitions) ■ Core bonds ■ Municipal bonds ■ Credit, private credit ■ Senior real estate debt ■ Leveraged loans 	<ul style="list-style-type: none"> ■ Emerging markets equity ■ Private equity ■ Commodities ■ Precious metals, gold ■ Treasury Inflation-Protected Securities (TIPS) ■ Convertible bonds ■ Commodities currencies ■ Real estate equity ■ Leveraged loans

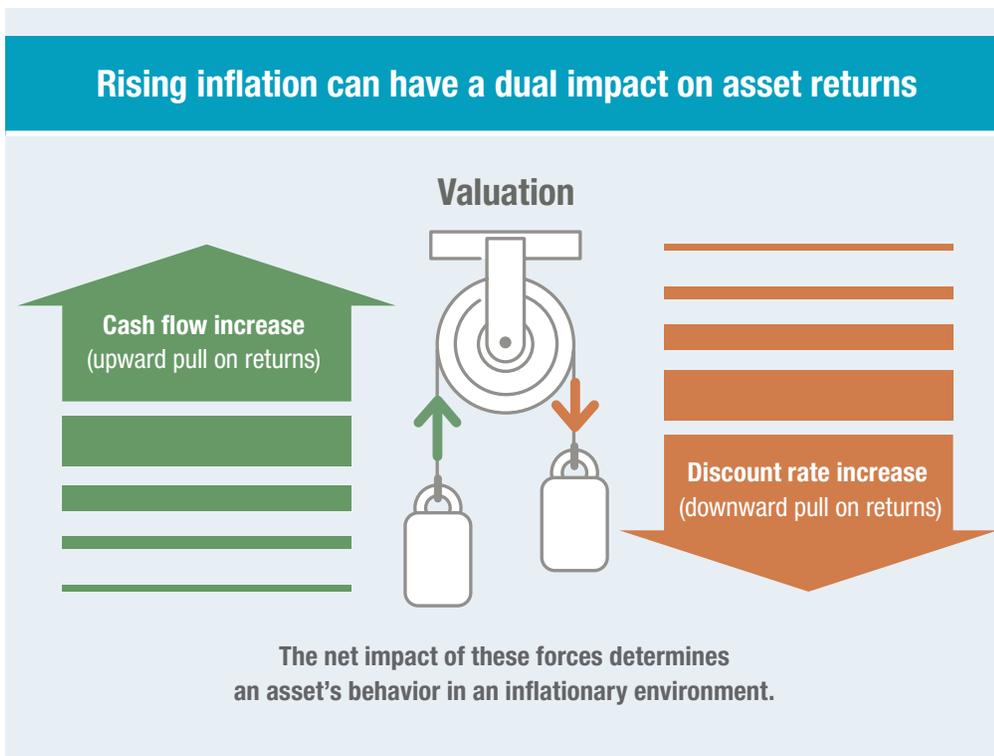
8. Given the accommodative monetary policy setting, a strong growth outlook, and the relatively short time horizon for our scenarios, we set aside a recession scenario in our analysis. Including a recession scenario would increase the weight we assign to the "return to lowflation" scenario. We focus herein on PCE inflation since it's the Fed's target. In our asset class analysis in later sections, we use consumer price index (CPI) data. For reference, CPI figures tend to run about 25 basis points higher than PCE. Probabilities assigned are the views of the Multi-Asset Solutions team based on conditions at the time of publication. For illustrative and informational purposes only. There is no guarantee that these scenarios will come to pass as described.

Factors to consider in asset allocation

The scenarios we have explored to this point have been somewhat simplistic, but inflation has different impacts on varying sources of investment return. This section explores some of those nuances and their tradeoffs in asset allocation.

The nature of inflation matters. Unexpected changes in price level can prompt a stronger market reaction than expected price increases. However, the order of magnitude in inflationary pressures matters less than the duration of those changes. Sustained price pressures, or lack thereof, likely carry the strongest implications for asset allocation.

Rising inflation can have a dual impact on asset returns. Many investors think of inflation as a tax on returns, but that's not its only impact. Inflation can have a positive impact on an asset's value when rising prices result in rising cash flows. For example, companies with pricing power can "pass-through" inflation to their customers. By contrast, inflation expectations and corresponding higher discount rates can result in the market devaluing an asset's future cash flows, resulting in lower present values. The net impact of these two forces determines an asset's behavior in an environment of rising inflation.



Source: MacKay Shields, 12/31/20.

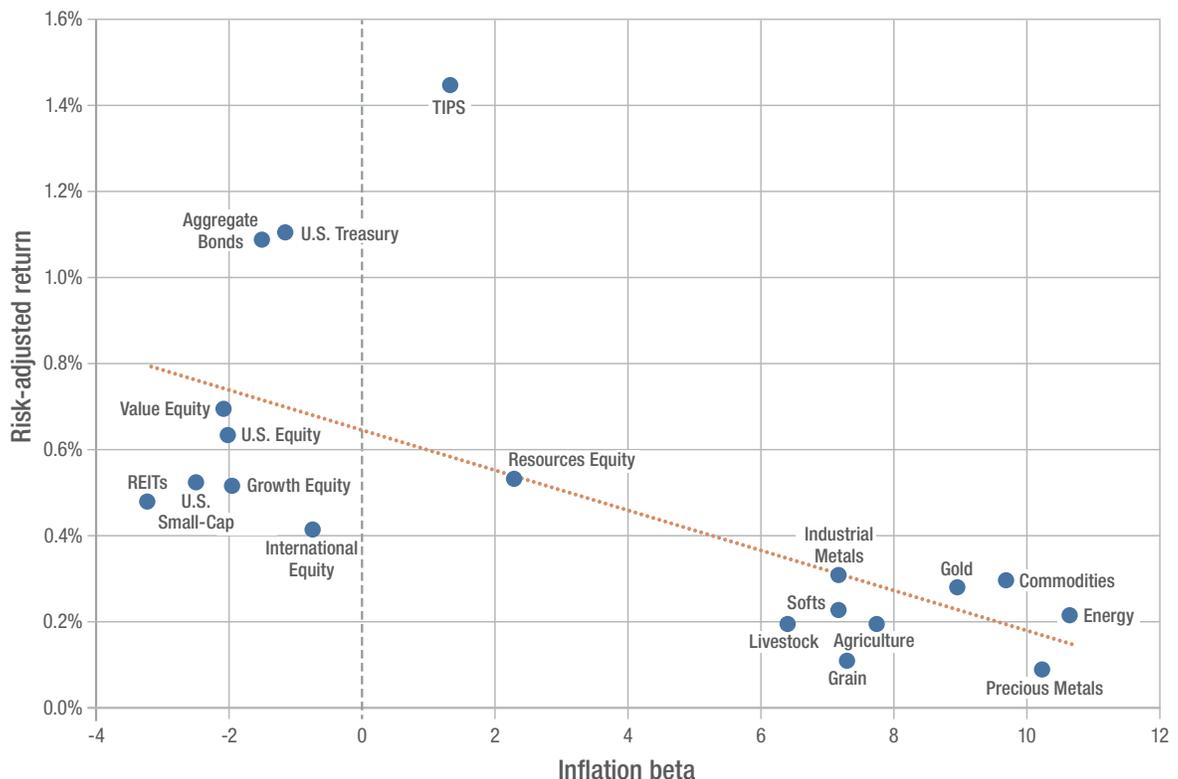
A tradeoff exists between inflation sensitivity and risk-adjusted returns:

When looking at asset class performance over time, there appears to be a tradeoff between inflation protection in the near term and risk-adjusted return in the longer term.

For example, equities can overcome inflation over long horizons, but their short- and medium-term record as an inflation hedge is relatively poor. Equity earnings tend to grow faster in years when inflation accelerates, but the market has applied a higher discount rate to those cash flows, lowering valuations.⁹ By the same token, commodities have had a consistently positive relationship with inflation, but have performed relatively poorly over the long term. Investors who prove successful in timing inflationary surprises may be rewarded, but holding the asset class for too long could detract from performance.

Tradeoff between inflation sensitivity and risk-adjusted returns

Inflation beta vs. risk-adjusted return, 1972-2020



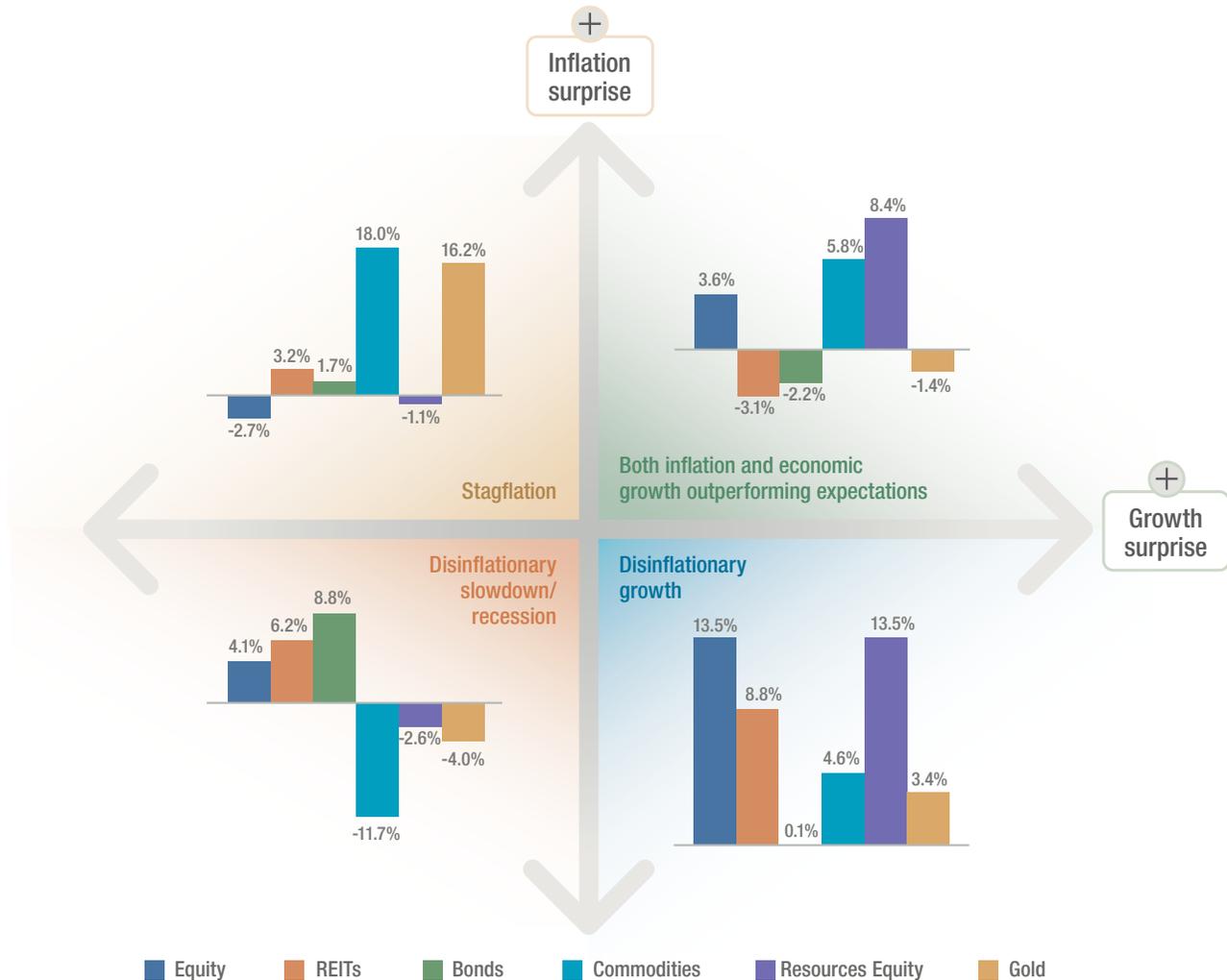
Sources: MacKay Shields, Bloomberg Finance LP, Kenneth R. French Data Library, U.S. Bureau of Labor Statistics, S&P Global, MacroTrends, Ibbotson, 12/31/20. Aggregate Bonds is Ibbotson Intermediate Treasury series until 1972, Bloomberg Barclays Gov/Credit Index from 1973-1975 and Bloomberg Barclays Aggregate Bond Index from 1976-present. Please note that past experience need not be reflected in future performance. For example, the highly attractive performance of bonds during this time period was driven in part by the relentless downward trend in interest rates, which cannot be repeated. We decided to use this time period in order to incorporate the higher-inflation scenarios of the 1970s and 1980s in our analysis, thus providing a more holistic scale of inflation scenarios. These choices precluded the inclusion of emerging markets debt and equity, for which comprehensive data is only available at later dates. Given numerous differences between developed markets and emerging markets securities at that time, and the many differences between emerging markets then and now—consider: China had not liberalized, companies were smaller and riskier, currency crises were numerous—we felt this omission was appropriate. Past performance is no guarantee of future results. An investment cannot be made in an index. Index definitions can be found at the end of this report.

9. Sources: MacKay Shields, Bureau of Labor Statistics, Robert J. Shiller, Yale University, Bloomberg Finance LP, S&P Global, 12/31/20. From 1972–2020, periods of accelerating inflation in S&P 500 earnings growth were 4% stronger than on average, but the higher discount rate resulted in a 1.7x decline in price-to-earnings ratio. In periods of decelerating inflation, S&P 500 earnings growth was 6.1% weaker than on average, but the lower discount rate resulted in a 2.7x higher price-to-earnings ratio.

Market expectations play an important role in investor gains: For the sake of simplicity, we isolated the inflation variable displayed in the previous chart. However, and despite its importance, inflation does not occur in a vacuum. Instead, the interaction between actual economic growth and inflation, and market expectations for those variables, is a key driver of asset prices.

Economic growth plays an important role in asset class impact

Excess returns over cash, sample of asset classes, 1972-2020



Sources: MacKay Shields, U.S. Federal Reserve Bank of Philadelphia, Bloomberg Finance LP, 12/31/20. Inflation and growth surprises are defined as the difference between realized inflation and growth and the forecasted values from the Philadelphia Fed's Survey of Professional Forecasters. We particularly like this survey because it is widely cited, broad in scope, and has a long history dating back to 1968. Historical asset performance can then be divided into four groups representing all of the possible combinations of growth and inflation surprises. Past performance is no guarantee of future results. An investment cannot be made in an index. Index definitions can be found at the end of this report.

Recent performance fits neatly into this framework. Since the second half of 2020, the U.S. economy has posted a series of upside inflation and growth surprises, putting it into the upper right quadrant of this chart. In this environment, we would expect to see strong performance of equity and industrial commodities, higher interest rates and lower precious metals. That's exactly what the market has experienced in the past ten months: according to Bloomberg (as of 6/23/21), spot gold is down over 13% since its peak last August; the 10-year Treasury yield is 100 basis points higher, the S&P 500 Index is up 30%, and copper is up over 40%.

The framework may also give us some clues as to where risks could be looming down the road. Current expectations on both inflation and economic growth are at the highest levels in the past decade. Should either growth or inflation expectations be missed, asset performance will likely experience a profound shift out of the upper right quadrant of the diagram. If both are missed, market volatility could spike, and risk asset prices could suffer.

Levers of manager value creation

Asset allocation. The ability to anticipate a change in inflation regime—before market pricing fully reflects that change—can add meaningful portfolio alpha. Of course, this is easier said than done. In addition to country and regional drivers of that change, investors must also consider that growth and inflation in countries like the U.S. and China can have meaningful impacts on financial conditions and asset prices in other areas of the world. For this reason, asset allocators must consider not only the inflationary environment, but the likely durability of that environment. This assessment will drive important changes in either tactical or structural allocation.

Given the variety of speeds in which countries are managing the COVID-19 health and economic crises, inflation and rate differentials could persist, generating currency volatility. The choice to hedge or partially hedge currency volatility can impact investor return.

Security selection. Skilled managers can assess company characteristics that would thrive in an inflationary scenario or persist in a disinflationary one. As the macroeconomic environment changes, and as market breadth expands and narrows, it is particularly important to identify company characteristics such as:

- *Pricing power:* Can companies pass price increases to consumers?
- *Credit evaluation:* Would an inflationary environment result in higher borrowing costs, impacting a borrower's debt sustainability? Will rating changes impact pricing?
- *Business model drivers:* Can the company leverage cyclical trends? In this cycle, trends would include factors like economic reopening, a renewed CAPEX cycle, and "peak digital demand."

Sources of return. Asset prices are not the only sources of investor return that can impact the tradeoff between assets as conditions change. For example, while gold may benefit from higher inflation, stronger economic growth also leads to an increase in real rates, which lessens the allure of non-interest-bearing assets. Or, as with asset classes (such as real estate equity), the intersection of higher incomes, lower cap rates, and manager skill will greatly impact the success of any strategy.

Client focus. For some investors, inflation protection is essential. Insurance companies, sovereign wealth funds, pension funds, and even retail investors with specific liabilities will see those liabilities rise as inflation does. The best multi-asset allocation will be that which aligns sources of return with investor goals.

Definitions

Active investing (also called active management) is an investment strategy involving ongoing buying and selling actions by the investor. Active investors purchase investments and continuously monitor their activity to exploit profitable conditions. Active management typically charges higher fees.

Alpha, often considered the active return on an investment, gauges the performance of an investment against a market index or benchmark that is considered to represent the market's movement as a whole. The excess return of an investment relative to the return of a benchmark index is the investment's alpha.

Alternative asset classes typically refer to investments that fall outside of the traditional asset classes commonly accessed by most investors, such as stocks, bonds, or cash investments.

A **basis point** is one one-hundredth of one percent.

Capital expenditures (CAPEX) are funds used by a company to acquire, upgrade, and maintain physical assets such as property, buildings, an industrial plant, technology, or equipment.

Cyclical stocks represent companies that make or sell discretionary items and services that are in demand when the economy is doing well. They include industries such as restaurants, hotel chains, airlines, furniture, high-end clothing retailers, manufacturers, and lenders (banks).

Diversification is a risk management strategy that mixes a wide variety of investments within a portfolio.

Dry powder refers to cash or marketable securities that are low-risk and highly liquid and convertible to cash.

Earnings per share (EPS) is calculated as a company's profit divided by the outstanding shares of its common stock.

Environmental, Social, and Governance (ESG) refers to the three central factors in measuring the sustainability and societal impact of an investment in a company or business.

Excess return is the return of a portfolio in excess of its benchmark where in excess is calculated geometrically by subtracting the benchmark's return from the portfolio's return in each period.

A **general partner (GP)** refers to the private equity firm responsible for managing a private equity fund. The private equity firm acts as a GP, and the external investors are LPs. The investors who have invested in the fund would be known as Limited Partners (LP), and the PE firm would be known as General Partner (GP).

Gross margin is a company's net sales revenue minus its cost of goods sold (COGS). In other words, it is the sales revenue a company retains after incurring the direct costs associated with producing the goods it sells, and the services it provides.

The **Manheim U.S. Used Car Survey** examines the economic underpinnings of the used vehicle market and sector-specific trends that influence supply and pricing. It is commonly used as a benchmark of changes in used car prices.

Passive management refers to an investment style for which investors expect a return that closely replicates the investment weighting and returns of a benchmark index.

The **Philadelphia Fed's Survey of Professional Forecasters** is a quarterly survey of economists' macroeconomic forecasts. It is commonly used as a benchmark for economic expectations.

The **price-to-earnings ratio** is the ratio of a company's share price to the company's earnings per share. The ratio is used for valuing companies and to find out whether they are overvalued or undervalued.

Reflation is an act of stimulating the economy by increasing the money supply or by reducing taxes, seeking to bring the economy back up to the long-term trend, following a dip in the business cycle.

The **U.S. 10-year Treasury Note** is a debt obligation issued by the United States government with a maturity of 10 years upon initial issuance.

A **value stock** is a stock that tends to trade at a lower price relative to its fundamentals, making it appealing to value investors.

Index definitions

The **Bloomberg Agriculture Subindex** is a commodity group subindex composed of futures contracts on coffee, corn, cotton, soybeans, soybean oil, soybean meal, sugar, and wheat.

The **Bloomberg Barclays Gov/Credit Index** is a broad-based flagship benchmark that measures the non-securitized component of the US Aggregate Index. The index includes investment grade, US- dollar-denominated, fixed-rate Treasuries, government-related and corporate securities.

The **Bloomberg Barclay's U.S. Aggregate Bond Index** is an index that broadly tracks the U.S. investment-grade bond market. The index is composed of a range of securities from corporate bonds and Treasuries to asset-backed securities.

The **Bloomberg Barclays US Agg Total Return Value Unhedged USD Index** is the Bloomberg Barclays Aggregate Bond index, but in unhedged USD.

The **Bloomberg Barclays Global Negative Yielding Debt Index** tracks global negative yielding debt.

The **Bloomberg Barclays U.S. Treasury Inflation Notes Index Value Unhedged USD** measures the performance of the U.S. Treasury Inflation Protected Securities (TIPS) market.

The **Bloomberg Commodity Index** is calculated on an excess return basis and reflects commodity futures price movements.

The **Bloomberg Energy Subindex** is a commodity group subindex composed of futures contracts on crude oil, heating oil, unleaded gasoline and natural gas.

The **Bloomberg Gold Subindex** is a commodity group subindex of the Bloomberg Commodities Index composed of futures contracts on gold.

The **Bloomberg Grains Subindex** is a commodity group subindex of the Bloomberg Commodities Index composed of futures contracts on corn, soybeans, and wheat.

The **Bloomberg Industrial Metals Subindex** is a commodity group subindex of the Bloomberg Commodities Index composed of futures contracts on aluminum, copper, nickel, and zinc.

The **Bloomberg Livestock Subindex** is a commodity group subindex of the Bloomberg Commodities Index composed of futures contracts on live cattle and lean hogs.

The **Bloomberg Precious Metals Subindex** is a commodity group subindex of the Bloomberg Commodities Index composed of futures contracts on gold and silver.

The **Bloomberg Softs Subindex** is a commodity group subindex of the Bloomberg Commodities Index composed of futures contracts on cotton, coffee, and sugar.

The **Core Consumer Price Index** is an aggregate of prices paid by urban consumers for a typical basket of goods, excluding food and energy.

The **FTSE NAREIT All Equity REITs Index** is a free-float adjusted, market capitalization-weighted index of U.S. equity REITs.

Morningstar Foreign Large Blend: Foreign large-blend portfolios invest in a variety of stocks of large international companies. Most of these portfolios divide their assets among a dozen or more developed markets, including Japan, Britain, France, and Germany. These portfolios primarily invest in stocks that have market caps in the top 70% of each economically integrated market (such as Europe or Asia ex-Japan). The blend style is assigned to portfolios where neither growth nor value characteristics predominate. These portfolios typically will have less than 20% of assets invested in U.S. stocks.

Morningstar Large Blend: Large-blend funds are generally representative of the overall U.S. stock market in size, growth rates, and price. Stocks in the top 70% of the capitalization of the U.S. equity market are defined as large cap. The blend style is assigned to portfolios where neither growth nor value characteristics predominate.

Morningstar Small Blend: Small-blend funds invest in stocks of small companies where neither growth nor value characteristics predominate. Stocks in the bottom 10% of the capitalization of the U.S. equity market are defined as small cap.

The **MSCI EAFE Index** is a stock market index that is designed to measure the equity market performance of developed markets outside of the U.S. & Canada.

The Chicago Fed's **National Financial Conditions Index (NFCI)** provides a comprehensive weekly update on U.S. financial conditions in money markets, debt and equity markets and the traditional and "shadow" banking systems.

The **Producer Price Index (PPI)** is a family of indexes that measures the average change over time in the selling prices received by domestic producers of goods and services. PPIs measure price change from the perspective of the seller.

The **Russell 1000 Growth Index** measures the performance of the large-cap growth segment of the U.S. equity universe. It includes those Russell 1000 companies with higher price-to-book ratios and higher forecasted growth values. The Russell 1000 Growth Index is constructed to provide a comprehensive and unbiased barometer for the large-cap growth segment.

The **Russell 1000 Value Index** measures the performance of the large-cap value segment of the U.S. equity universe. It includes those Russell 1000 companies with lower price-to-book ratios and lower forecasted growth values. The Russell 1000 Value Index is constructed to provide a comprehensive and unbiased barometer for the large-cap value segment.

The **Russell 3000 Index** is a capitalization-weighted stock market index that seeks to be a benchmark of the entire U.S. stock market.

The **S&P 500 Index** is a stock market index tracking the stock performance of 500 of the largest companies listed on stock exchanges in the United States. It is widely regarded as the standard for measuring large-cap U.S. stock market performance.

The **S&P Global Natural Resources Index** includes 90 of the largest publicly traded companies in natural resources and commodities businesses that meet specific investability requirements, offering investors diversified and investable equity exposure across three primary commodity-related sectors: agribusiness, energy, and metals & mining.

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