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Assessing the Inflation Trajectory— and Portfolio Responses

Inflation is probably the preeminent macro issue today, and recent months of declining inflation expectations do not alter its strategic importance. Because there is a nonlinear relationship between inflation and many return streams, we distinguish between moderate inflation (which is more likely) and genuinely high inflation. This narrative is not only about finding returns when inflation rises but also about analyzing stable sources of diversification and their effect on cross-asset portfolios.

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Introduction

Even after two months of declining inflation expectations, inflation remains one of the preeminent strategic issues for asset owners. While “reopening” inflation is likely transitory, the post-pandemic policy landscape makes persistent inflation more likely. Given the drama of inflationary headlines, the knee-jerk reaction might be to reflect on past episodes of unanchored high inflation. But while that’s a possibility, we think it’s more likely that equilibrium inflation will be only moderately higher than pre-pandemic levels. Nevertheless, this would still be a massive change from recent decades.

Shifting a strategic allocation, let alone the underlying methodology, is challenging, but the pandemic’s aftermath and likelihood of a genuinely different policy path could be catalysts for change. Many allocations may have weaker defenses against higher inflation, which can be an opportunity to accelerate needed change in fund governance—evaluating the inflation sensitivity of strategic allocations as well as the required manager and product due diligence necessary to *pre-position* portfolios for a period of sustainably higher inflation expectations.

In this note, we’ll detail the impact of different inflation outcomes on a broad range of possible return streams. Because equity exposure is likely to increase with a moderately higher inflation level, we’ll indicate what we view as the most effective way to diversify that risk as inflation increases. And we’ll go on to demonstrate how progressively increasing an allocation to a range of potential inflation hedges alters the risk/return profile of a 60/40 portfolio.

While analyzing historical return and risk in a given macro setting is a key starting point for such an analysis, the valuation starting point will also be crucial in setting strategic allocations. Some investors may be suspicious of this statement: valuations have generally not been a guide for investment success given the past decade’s falling yields. However, today we are faced with historically high valuations for some assets and historically wide valuations within some asset classes. This environment demands attention when forming allocations.

We also suggest that there are limits to using recent historical relationships to map out an allocation. The post-pandemic policy landscape has arguably changed materially from that of recent decades: a political desire to maintain inflation in order to manage debt levels, an economic rebalancing from capital to labor, the reallocation of resources to “green” investment and a likely permanent larger role for fiscal policy. Some of these changes will undoubtedly require allocators to take a view on sociopolitical change.

There is considerable uncertainty in the macro outlook, but inflation seems likely to be higher long-term than it was before the pandemic, suggesting a need to adjust portfolios in response—and for asset owners to adopt a broad toolkit of traditional and nontraditional exposures to address it. In fact, adjusting exposures to regional equities and/or factors might have a larger role to play in inflation responses, rather than simply boosting an allocation to Treasury Inflation-Protected Securities (TIPS).

For defined contribution (DC) funds, the nature of a more inflation-resistant portfolio evolves over the investing lifetime. Early on, inflation protection implies an ability to deliver positive real growth; later in the glide path, preserving purchasing power by hedging inflation is a greater concern. In practical terms, this translates into a shift in preference from equities to other real assets over the course of the glide path.

At face value, many inflation hedges seem to be in conflict with the requirements of environmental, social and governance (ESG) investing, a situation that’s most acute for commodities, commodity equities and cryptocurrency exposure, and arguably applies to value investing in general. However, we think this conflict will lessen as ESG investing matures.

We also discuss the likely durability of various types of inflation hedges, which depends not only on the overall sociopolitical environment but also on the pace of innovation in the investment-management industry.

Inflation Outlook—It's Not Just About “Transitory”

Inflation is probably the most important macro issue today, but the fixation with inflation seems somewhat confused. The narrative is all about what inflation means for the timing of the first Federal Reserve hike, or about the timing of tapering. Consequently, when one sees two months of falling inflation expectations, the market is awash with commentary that the “reflation trade is over.” We think this perspective misses the forest for the trees.

The big issue, as we see it, is how the medium-term equilibrium inflation level may have changed—and the policy response to it. Higher inflation is needed to deal with rising debt levels in an era when austerity is no longer possible and when more activist fiscal policy seems to be a permanent feature. Seen in that light, higher inflation will likely be a feature of the economy for years to come and is part of a “leveling up” agenda.

This point of view may seem like straying into making calls on long-run politics or even the sociopolitical landscape; frankly, we think any serious discussion of strategic asset allocation must do this. Whether or not this perspective is reflected in current 10-year inflation breakeven yields or the minutiae of Fed speak isn't the point. As we've said in recent research (please see [Are We Human or Are We Dancer?](#)), all investing comes down to politics in the end.

There are both inflationary and deflationary forces in the medium term, but, on balance, inflationary forces seem stronger. Therefore, our medium-term expectation is that inflation will find an equilibrium above the pre-pandemic level, but will not become unanchored (please see [Alpha, Beta and Inflation: An Outlook for Asset Owners](#)).

Inflation expectations have fallen abruptly in recent months, even as short-term realized inflation remains high. The disconnect is stark but also seems consistent with the likelihood that excessively high inflation prints are transitory. Realized inflation will likely abate from today's elevated levels, but we don't believe that falling expectations signal a return to the pre-pandemic disinflationary norm, so inflation demands investors' attention as they refine strategic asset allocations.

Ultimately, the inflation trajectory reflects the path of policy, debt levels and ESG in the broadest sense of the word—society's view of the endless erosion of labor bargaining power. That's why we see a

case for moderately higher inflation in the medium term. The core of the analysis in this note focuses on how to build portfolios to respond to this scenario, covering a few key points:

- The returns investors should expect from specific assets or factors when inflation is either moderately high or very high
- Expected diversification potential from specific assets or factors when inflation is either moderately high or very high
- How returns and risk levels of an overall starting portfolio (a traditional 60/40) change when certain inflation-protecting assets and factors are added
- How inflation tools are valued, and whether a premium is required today to buy portfolio inflation protection

Benchmarks and Goal-Setting: The Inflation Angle

In our recent black book [Are We Human or Are We Dancer?](#), we made the case that investors should review benchmark and goal-setting in the light of possible higher inflation. In our view, sovereign wealth funds, endowments and DC plans “should” target a given level of real return: because they all must fund spending in the real economy, they should seek to increase purchasing power over relatively long investing horizons.

Some pension plans, including many US state plans, have return targets couched as a nominal return—for example, 6.5% annualized. We argue that the impact of inflation on such a plan depends on the asset owner's point of view. In simple terms, a moderate move higher in inflation would, all else equal, help achieve that return target. But if a plan expects to continue for multiple generations, we argue that persistently higher inflation should drive a higher return target. We recognize that this eventuality is probably more of a political than an economic decision, however, and may lie beyond the bounds of normal analysis for many plan funds. Nevertheless, that has to be taken into account in a genuine attempt to address strategic asset allocation.

A persistent higher move in inflation and lower nominal returns might challenge the way that these return targets are set and might also reveal that setting them via a benchmarking exercise versus other funds is ultimately a fool's errand. Instead, we believe that setting targets must be grounded in economic reality—anything else is kicking the can down the road.

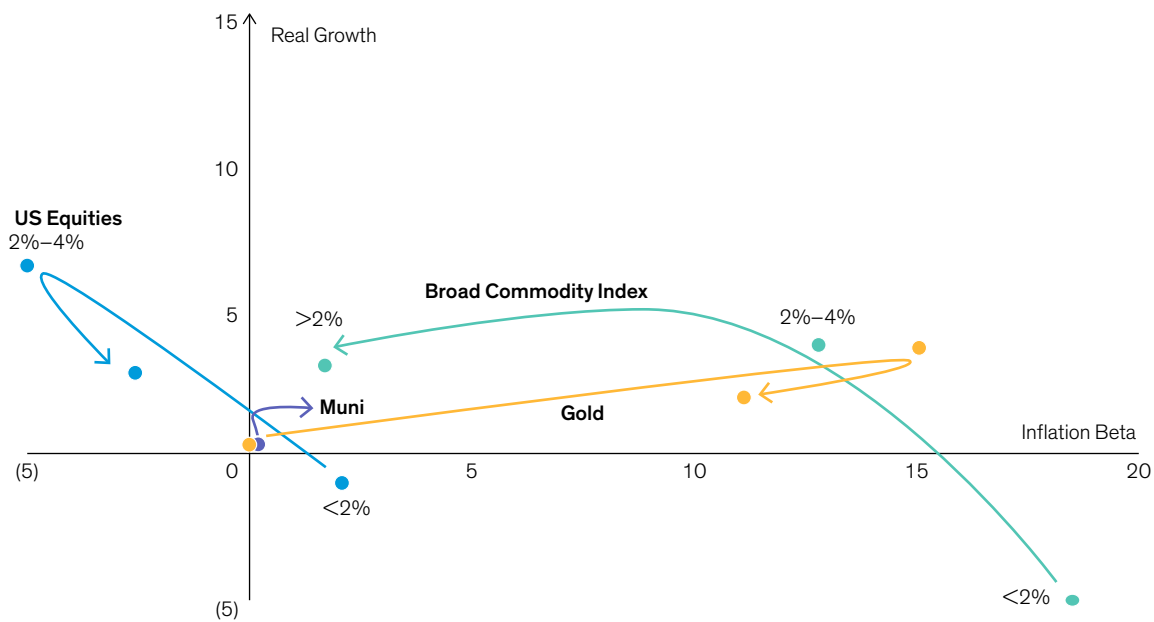
Evaluating Real Return and Inflation Hedging

Over the lifecycle of a DC plan or target-date strategy, there is a subtle need to at least preserve purchasing power and grow the asset pool relative to real-world liabilities. However, the risk-return trade-off evolves over that lifecycle. Early on, the investment goal should be to generate positive real returns; closer to retirement, preserving purchasing power is more important. The term “inflation hedge” is used very loosely, when it can really refer to two distinct attributes: delivering positive real returns when inflation is higher and delivering returns that closely match inflation (a “hedge”). We suggest that a DC investor’s primary goal should shift from positive real returns to hedging over the saving lifetime.

In *Display 1*, we stack up some assets based on their ability to deliver positive real growth and hedge inflation. These abilities depend on the level of inflation, so we also show how this trade-off evolves across that inflation spectrum.

For example, at moderate levels of inflation, equities are at the top left—they deliver strong positive real returns but have a negative inflation beta (positive inflation shocks from that level can be negative for the equity outlook). So equities help generate real growth but aren’t a good inflation hedge. Commodities are to the right—more useful for inflation hedging than real growth. Gold tends to move in the opposite direction of equities in this construct, so it becomes a better inflation hedge as inflation moves from low to moderate levels.

DISPLAY 1: THE PROGRESSION FROM REAL GROWTH TO INFLATION HEDGING



Historical analysis and current forecasts do not guarantee future results.

The chart shows the average year-over-year real return against the beta from the regression of nominal year-over-year return vs. year-over-year change in US CPI in different inflation regimes proxied by the US 10-year TIPS implied breakeven inflation rate. Low inflation periods are defined as breakeven rate below 2%, moderate inflation is defined as breakeven rate between 2–4% and high inflation periods are defined as breakeven rate higher than 4%.

Data from January 1, 1970, to May 31, 2021 | **Source:** AQR database, Bloomberg, Datastream, Fama-French database, Federal Reserve Economic Data (FRED), Global Financial Data, New York Fed, Robert Shiller database and AllianceBernstein (AB)

Another way to express this concept is to list the assets that tend to be most effective either as real-return contributors or as inflation hedges in moderate- or high-inflation regimes, which we do in *Display 2*.

The general picture that emerges: in periods of moderate inflation, equity beta, real estate investment trusts (REITs) and value equity are key for generating positive real returns, while commodities, gold and momentum are more effective as hedges. With higher inflation, equity beta becomes a less reliable source of real growth, while equity factors such as value and free-cash-flow yield become more important. Commodities and momentum retain their ability to hedge inflation.

Bear in mind that our outlook is that moderate inflation is the most likely outcome, with genuinely high inflation less of a risk. If we translate this worldview into a suggested glide path allocation for DC funds, it has clear implications: The inflation-protection element should have a high allocation to equity beta, REITs and value equity in the early stages of the glide path. This should evolve to higher exposure to commodities, gold and trend strategies later in the glide path.

To be fair, the term “real asset” can be interpreted in different ways. Rather than viewing it as a limited set of clearly delineated physical assets, we show a broader range of possibilities in the following sections. In our view, public equities can be thought of as a real asset—they offer partial ownership of a corporation whose revenues, and therefore dividends, can grow alongside the real growth of the economy. At the other end of the scale, real assets can refer to a physical building, a piece of land or infrastructure, which is why, in the previous display, physical assets are more closely aligned with inflation hedging.

We've discussed benchmarks mainly from the standpoint of DC plans, but a change in the policy environment could also have major implications for defined benefit (DB) funds too. This is especially true if interest rates remain pinned lower for even longer than current expectations—something we think is very possible. Yet, many DB funds have assumed that rates will eventually normalize.

DISPLAY 2: REAL-GROWTH AND INFLATION-HEDGING TOOL SETS EVOLVE

Moderate Inflation		High Inflation	
Real Return	Inflation Beta	Real Return	Inflation Beta
REITs	Broad Commodity Index	EM Equities	Oil
Equity Value	Oil	REITs	Gold
Equities (US, EM*, Japan)	Gold	Equity Value	Municipal Bonds
Equity Free-Cash-Flow (FCF) Yield	Commodity Equities	Equity FCF Yield	Broad Commodity Index
	Equity Momentum	Equity Dividend Yield	Commodity Equities
	Farmland/Timberland		Momentum (Equities and FX)
	Renewables/Power Delivery		Farmland/Timberland

* EM: emerging-market

Assessing Return Streams in Different Inflation Regimes

We analyze the efficacy of return streams in various inflation regimes. This is nuanced, as there is considerable evidence that many return streams have a nonlinear relationship with inflation. For example, the broad equity market dislikes deflation and abhors high inflation. However, evidence suggests that a move from low inflation to moderate inflation is consistent with positive equity returns, so it's important to be clear on the inflation level.

As we stated earlier, we do not think we are heading back to pre-pandemic disinflation. However, one thing that seems accurate about recent declines in 10-year breakeven inflation rates is that we don't seem headed for a high inflation level that would be very damaging for equity returns.

That outlook is reflected in a key conclusion of our analysis: equity exposure for many investors should generally increase (subject to specific asset owner constraints, of course). For that reason, in the initial part of our analysis presented here, along with an analysis of equity returns based on inflation, we put equal weight on how effectively various return streams diversify equity risk—and how that ability depends on inflation.

In *Display 3*, we show the average return for a range of assets, factors and sectors by inflation band since 1970. This analysis is from the point of view of a US investor, so returns are conditioned using a measure of inflation expectations developed by the Federal Reserve Bank of New York that proxies expectations over a long history. Non-US investors face two issues in interpreting this research: hedging returns into local currency, if required, and the broader question of the extent to which our inflation assumption applies to other regions. We think there's a good case that developed markets generally face a similar outlook, given the expansion of public debt following COVID-19 and the balancing deflationary forces from trends such as automation. Thus, we think that these results are, in general, globally applicable.

In what probably isn't a surprise, commodities, gold and REITs perform well as inflation rises. We've also separated out the more explicit benefit of certain return factors. For example, value strategies, both long-only and long/short, tend to fare better as inflation rises (though this benefit declines somewhat when inflation rises past the 5% threshold). Likewise, low-volatility equity holds up well when inflation is high, though less so when the inflation increase is still taking place. Trend strategies (the momentum factor), both in equities and fixed income, also tend to deliver positive returns at high inflation levels.

DISPLAY 3: AVERAGE REAL RETURNS BY INFLATION BAND

Average Real Return (Annualized, %)

BE Bands	<1%	1%–2%	2%–3%	3%–4%	4%–5%	>5%
Breakeven Average	0.8	1.7	2.3	3.5	4.7	6.9
Breakeven Frequency	1.7	22.1	25.0	8.2	11.4	31.7
US 60/40 Portfolio	(0.1)	4.0	9.0	11.9	9.2	3.4
Equities	<1%	1%–2%	2%–3%	3%–4%	4%–5%	>5%
US Equities	(6.8)	2.6	14.6	15.6	10.6	4.5
EM Equities	(40.1)	(3.4)	21.3	13.7	21.5	9.8
World Equities	(11.6)	(0.5)	14.5	14.5	11.2	4.6
Japan Equities	(21.8)	(4.2)	10.2	27.2	24.4	8.0
Fixed Income	<1%	1%–2%	2%–3%	3%–4%	4%–5%	>5%
US 10-Year Government Bonds	11.7	6.0	1.1	6.5	7.1	1.7
Japan 10-Year Government Bonds	10.5	1.3	(0.3)	12.5	18.4	4.8
World 10-Year Government Bonds	8.8	4.5	2.4	9.1	11.6	3.5
US Investment-Grade Bonds	(1.3)	5.2	3.7	7.6	8.5	3.2
World Investment-Grade Bonds	(9.5)	(1.7)	(0.7)	(1.3)	(1.9)	(5.4)
US High-Yield Bonds	(11.9)	2.5	9.0	11.0	9.3	4.4
World High-Yield Bonds	(21.2)	(2.8)	5.1	0.6	1.3	(1.7)
US TIPS (10 Year)	1.9	4.4	2.7	3.8	6.0	4.2
US Municipal Bonds	1.2	4.0	2.1	6.1	3.8	2.5

DISPLAY 3: AVERAGE REAL RETURNS BY INFLATION BAND (CONTINUED)

Average Real Return (Annualized, %)

Real Assets	<1%	1%–2%	2%–3%	3%–4%	4%–5%	>5%
Broad Commodity Index	(40.2)	(11.6)	12.6	12.8	5.9	10.0
Oil	(45.1)	(8.7)	28.2	4.6	(1.2)	15.1
Gold	(2.8)	4.1	8.0	9.6	5.9	7.3
US REITs	(25.9)	5.7	15.9	23.1	16.6	8.5
World REITs	(32.4)	4.1	16.0	30.0	20.7	10.1
US Real Estate	(3.3)	2.7	2.2	(0.4)	1.1	0.0
World Infrastructure	(5.3)	2.5	16.0	4.9	9.1	2.6
Factors Long/Short	<1%	1%–2%	2%–3%	3%–4%	4%–5%	>5%
Equity Price to Book L/S	(16.3)	(4.2)	1.3	0.3	5.1	(0.1)
Equity PE L/S	(8.7)	1.0	0.1	(2.0)	4.9	(1.3)
Equity Quality L/S	18.2	6.8	(2.8)	2.0	(1.4)	(3.8)
Equity Dividend Yield L/S	(6.6)	1.2	(3.1)	(7.8)	4.1	(5.5)
Equity FCF Yield L/S	(7.8)	(5.0)	(0.2)	(3.3)	5.0	(0.5)
Equity Low Vol L/S	25.5	5.6	(8.7)	0.3	4.0	(1.1)
Equity Momentum L/S	18.4	2.3	1.5	11.5	7.0	3.0
Fixed Income Value	(1.2)	(0.9)	(1.8)	1.4	(5.1)	(2.8)
Fixed Income Momentum	(2.3)	(1.3)	(1.2)	(3.0)	(1.1)	(7.1)
Fixed Income Carry	(1.0)	(0.4)	(0.9)	(2.6)	0.2	(3.0)
FX Value	1.0	1.9	1.1	3.0	(1.0)	(3.8)
FX Momentum	(2.7)	(2.3)	(2.0)	0.8	(2.2)	(4.6)
FX Carry	(13.9)	0.0	3.0	0.0	(3.0)	(3.2)
Factors Long-Only	<1%	1%–2%	2%–3%	3%–4%	4%–5%	>5%
Equity Price to Book L/O	(16.6)	0.5	19.5	19.3	17.9	9.6
Equity PE L/O	(15.6)	4.2	18.6	17.5	17.3	7.3
Equity Quality L/O	(1.1)	4.6	15.4	18.4	11.3	5.6
Equity Dividend Yield L/O	(8.4)	4.4	13.5	12.2	16.1	5.5
Equity FCF Yield L/O	(12.3)	(0.1)	18.1	16.5	17.6	8.2
Equity Low Vol L/O	(7.0)	5.2	13.1	16.3	11.7	4.8
Sectors	<1%	1%–2%	2%–3%	3%–4%	4%–5%	>5%
US Industrials relative	(8.0)	(0.1)	3.5	5.9	(1.0)	(0.1)
US Materials relative	(19.3)	(2.1)	3.8	(4.7)	(0.8)	0.4
US Metals and Mining relative	(31.2)	(7.9)	10.1	(8.3)	(0.3)	1.4
US Consumer Cyclical relative	5.9	4.6	0.1	(3.6)	0.5	(1.3)
US Consumer Staples relative	6.6	2.0	(3.3)	(2.2)	2.9	2.8
US Energy relative	(14.1)	(9.1)	5.4	(0.9)	(3.3)	1.5
US Banks relative	(14.2)	(0.8)	(2.3)	6.3	2.6	0.7
US Insurance relative	(9.5)	0.9	(2.6)	5.8	3.6	1.1
US Healthcare relative	9.1	3.4	(2.0)	(1.7)	0.1	2.6
US Real Estate relative	(22.1)	2.7	1.1	9.3	2.2	2.7
US Technology relative	14.9	4.4	4.0	11.8	(3.2)	(2.2)
US Telecoms relative	12.0	(3.7)	(2.8)	(2.0)	4.2	0.1
US Utilities relative	1.8	(0.2)	(2.0)	(4.8)	1.5	(1.3)

Historical analysis and current forecasts do not guarantee future results. The table shows average year-over-year return for different assets in different inflation regimes. The data history is from 1970 or longest available history. Inflation regimes are proxied by the US 10-year TIPS implied breakeven inflation rate. The pre-1997 10-year breakeven rate is a backcast of implied inflation calculated by Jan J. J. Groen and Menno Middelorp from New York Fed. For more details please see: <https://libertystreeteconomics.newyorkfed.org/2013/08/creating-a-history-of-us-inflation-expectations/>. Equity long-only factors show the market-cap weighted absolute return of a portfolio of top quintile-ranked stocks based on the factor characteristic. Equity long/short factors show the market-cap weighted return of a portfolio that is long the top quintile-ranked stocks and short the bottom quintile-ranked stocks. World investment-grade and high-yield bond returns are shown in excess of duration. US CPI is used to convert nominal to real returns. Relative sector returns are calculated as a nominal sector return vs. the nominal US market return. We do not subtract the change in CPI for relative sector returns.

Data from January 1, 1970, to May 31, 2021 | **Source:** AQR database, Bloomberg, Datastream, Fama-French database, FRED, Global Financial Data, New York Fed, Robert Shiller database and AllianceBernstein (AB)

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In *Display 4*, we repeat the exercise, but in this case measuring the correlation of returns with US equities and how that correlation changes by inflation band. This analysis addresses the robustness of the diversification of equity risk as inflation rises. Bonds tend to lose their diversifying potential as inflation rises (for example, the correlation of returns from the US 10-year Treasury with US equities has been 0.3 with inflation in the 3% to 4% range). Equity

long/short factors, such as low volatility, become progressively better diversifiers of equity risk with inflation. We also see interesting differences at the equity sector level, such as energy and utilities, i.e., sectors that tend to have higher yields but also an aspect of inflation linkage to their revenues, providing good diversification at higher yields.¹

DISPLAY 4: CORRELATION WITH US EQUITIES BY INFLATION BAND

BE Bands	<2%	2%–3%	3%–4%	4%–5%	>5%
Breakeven Average	1.7%	2.3%	3.6%	4.8%	6.9%
Breakeven Frequency	25.5%	23.5%	9.8%	9.8%	31.4%
US 60/40 Portfolio	0.95	0.92	0.91	0.97	0.95
Equities	<2%	2%–3%	3%–4%	4%–5%	>5%
EM Equities	0.71	0.71	0.32	0.43	0.24
World Equities	0.96	0.95	0.73	0.85	0.82
Japan Equities	0.59	0.48	0.23	0.51	0.20
Fixed Income	<2%	2%–3%	3%–4%	4%–5%	>5%
US 10-Year Government Bonds	(0.27)	(0.19)	0.31	0.42	0.37
Japan 10-Year Government Bonds	(0.14)	(0.11)	0.16	0.05	0.06
World 10-Year Government Bonds	(0.15)	0.00	0.24	0.44	0.22
US Investment-Grade Bonds	0.08	0.13	0.27	0.41	0.45
World Investment-Grade Bonds	0.57	0.59	0.18	0.03	(0.06)
US High-Yield Bonds	0.32	0.37	0.30	0.06	0.50
World High-Yield Bonds	0.61	0.64	(0.06)	(0.18)	0.07
US TIPS (10 Year)	(0.08)	0.03	0.34	0.29	0.27
US Municipal Bonds	(0.08)	0.03	0.37	0.69	0.57
Real Assets	<2%	2%–3%	3%–4%	4%–5%	>5%
Broad Commodity Index	0.23	0.30	0.03	(0.08)	0.04
Oil	0.23	0.20	0.01	(0.04)	(0.03)
Gold	(0.06)	0.15	(0.08)	(0.20)	(0.09)
US REITs	0.51	0.54	0.47	0.64	0.72
World REITs	0.56	0.61	0.57	0.69	0.70
US Real Estate	0.07	(0.14)	(0.09)	(0.07)	0.02
World Infrastructure	0.51	0.67	0.47	0.67	0.73
Factors Long/Short	<2%	2%–3%	3%–4%	4%–5%	>5%

¹ Sector measurement based on the spread of returns between the sector and the market

DISPLAY 4: CORRELATION WITH US EQUITIES BY INFLATION BAND (CONTINUED)

Equity Price to Book L/S	0.04	0.16	0.15	0.03	(0.28)
Equity PE L/S	(0.01)	(0.04)	0.10	0.04	(0.23)
Equity Quality L/S	(0.38)	(0.28)	(0.24)	(0.11)	0.00
Equity Dividend Yield L/S	(0.36)	(0.33)	(0.28)	(0.34)	(0.59)
Equity FCF Yield L/S	(0.08)	(0.17)	0.09	(0.03)	(0.34)
Equity Low Vol L/S	(0.59)	(0.48)	(0.34)	(0.37)	(0.56)
Equity Momentum L/S	(0.37)	0.00	(0.09)	0.12	0.08
Fixed Income Value	0.01	0.18	(0.02)	0.17	0.10
Fixed Income Momentum	0.05	0.00	0.12	(0.12)	(0.01)
Fixed Income Carry	(0.11)	0.10	0.09	(0.10)	(0.06)
FX Value	0.10	(0.15)	0.11	0.14	(0.11)
FX Momentum	(0.03)	0.24	0.07	(0.05)	0.05
FX Carry	0.48	0.40	(0.03)	0.13	0.08
Factors Long-Only	<2%	2%–3%	3%–4%	4%–5%	>5%
Equity Price to Book L/O	0.85	0.87	0.81	0.79	0.89
Equity PE L/O	0.86	0.88	0.88	0.84	0.90
Equity Quality L/O	0.97	0.95	0.93	0.95	0.98
Equity Dividend Yield L/O	0.73	0.80	0.73	0.84	0.81
Equity FCF Yield L/O	0.85	0.84	0.90	0.81	0.91
Equity Low Vol L/O	0.83	0.93	0.89	0.96	0.94
Sectors	<2%	2%–3%	3%–4%	4%–5%	>5%
US Industrials relative	0.27	0.23	0.10	0.18	0.36
US Materials relative	0.16	0.25	0.00	0.28	0.37
US Metals and Mining relative	0.32	0.29	0.02	0.18	0.13
US Consumer Cyclical relative	0.12	0.12	0.18	0.14	0.31
US Consumer Staples relative	(0.53)	(0.44)	(0.08)	(0.10)	(0.16)
US Energy relative	(0.10)	0.09	(0.18)	(0.17)	(0.12)
US Banks relative	0.20	0.08	0.08	0.07	(0.05)
US Insurance relative	(0.11)	(0.05)	(0.05)	0.00	0.10
US Healthcare relative	(0.41)	(0.27)	(0.02)	0.11	(0.14)
US Real Estate relative	(0.32)	(0.16)	(0.15)	0.33	0.25
US Technology relative	0.38	0.26	0.14	(0.03)	0.10
US Telecoms relative	(0.14)	(0.25)	(0.13)	(0.39)	(0.42)
US Utilities relative	(0.51)	(0.55)	(0.29)	(0.39)	(0.52)

Historical analysis and current forecasts do not guarantee future results. The table shows average 12-month rolling correlation with US equities for different asset classes in different inflation regimes. The data history is from 1970 or longest available history. Inflation regimes are proxied by the US 10-year TIPS implied breakeven inflation rate. The pre-1997 10-year breakeven rate is a backcast of implied inflation calculated by Jan J. J. Groen and Menno Middelborg from New York Fed. For more details please see: <https://libertystreeteconomics.newyorkfed.org/2013/08/creating-a-history-of-us-inflation-expectations/>. Equity long-only factors show the market-cap weighted absolute return of a portfolio of top quintile-ranked stocks based on the factor characteristic. Equity long/short factors show the market-cap weighted return of a portfolio that is long the top quintile-ranked stocks and short the bottom quintile-ranked stocks. World investment-grade and high-yield bond returns are shown in excess of duration. US CPI is used to convert nominal to real returns. Relative sector returns are calculated as a nominal sector return versus the nominal US market return. We do not subtract the change in CPI for relative sector returns.

Data from January 1, 1970, to May 31, 2021 | **Source:** AQR database, Bloomberg, Datastream, Fama-French database, FRED, Global Financial Data, New York Fed and AllianceBernstein (AB)

The Trade-Offs in Inflation-Protecting Assets

Bringing all these quantitative results together, we can draw some big-picture qualitative conclusions. *Display 5* looks at a select subset of assets, categorizing their usefulness along key dimensions: ability to deliver positive real returns, reliability in doing so and ability to hedge equity beta. We also assess the cost of access (based on fees, taxes and liquidity).

Given the nonlinear impact of inflation on many return streams, we separate the results into moderate inflation (which we define as a 10-year inflation breakeven in the range of 2%–4%) and high inflation (breakeven above 4%). This variation in effectiveness across inflation regimes causes much confusion about what an effective inflation hedge actually is.

Based on the results, commodities have been effective at delivering positive real returns in both moderate and high inflationary regimes, though their relatively high volatility means that they only rate an amber for “hit rate.” TIPS reverse those traits, with high reliability but only moderate real returns compared with the range of other options. Among physical real assets, world infrastructure equity scores green lights for real return and reliability in moderate inflation, but doesn't fare as well in high-inflation environments. Gold scores relatively well in periods of both moderate and high inflation and is one of the relatively few assets that can still be a hedge for equity risk in higher inflation periods.

We've included a small selection of illiquid and real assets in this more qualitative table, though it's hard to fit them into such an analysis because the data sets are not as rich. As representative examples, infrastructure, farmland and timber all have possible roles to play as inflation hedges. We also think renewables can play a bigger role as part of these real return streams. With power delivery, for example, the build-out of offshore wind power combined with a pricing shift from fixed rate to more market rate likely means more ready access to return streams of this nature.

How effective can we expect these return streams to be in the future? As we mentioned earlier, the significant change in the policy environment perhaps implies that one cannot always rely on recent history to be a guide. It's also important to look closely at what might affect those relationships going forward before making a complete assessment.

In our view, equities are a key component of delivering real returns for portfolios in a moderate inflation regime. We think the main risk to that reliability is not policy, at least not directly. Instead, high valuations and the prospect of declining margins (a function of the sociopolitical climate) are the issues most likely to somewhat curtail real returns. Still, we think equities can continue to deliver positive real returns during moderately high inflation, albeit perhaps lower than the historical norm, making them central to asset allocation in such an environment.

DISPLAY 5: GAUGING THE EFFECTIVENESS OF INFLATION HEDGES

Class	Asset	Moderate Inflation			High Inflation			Cost
		Real Return	Reliability	US Equity Hedge Ability	Real Return	Reliability	US Equity Hedge Ability	
Equities/Bonds								
	US Equities	●	●	●	●	●	●	●
	EM Equities	●	●	●	●	●	●	●
	US 60/40 Portfolio	●	●	●	●	●	●	●
Real Bonds								
	US 10-Year TIPS	●	●	●	●	●	●	●
Real Assets								
Commodities								
	Oil	●	●	●	●	●	●	●
	Broad Commodity Index	●	●	●	●	●	●	●
Factors								
	Fixed Income Value	●	●	●	●	●	●	●
	FX Momentum	●	●	●	●	●	●	●
	Equity P/B (L/S)	●	●	●	●	●	●	●
	Equity P/B (L/O)	●	●	●	●	●	●	●
	Equity Momentum (L/S)	●	●	●	●	●	●	●
Commodity Equities								
	US Energy (relative)	●	●	●	●	●	●	●
Physical Real Assets								
	US REITs	●	●	●	●	●	●	●
	World Infrastructure Equity	●	●	●	●	●	●	●
	Farmland	●	●	●	●	●	●	●
	Timberland	●	●	●	●	●	●	●
Renewables								
	Power Delivery	●	●	●	●	●	●	●
Non-Fiat currency								
	Gold	●	●	●	●	●	●	●
	Cryptocurrencies	●	●	●	●	●	●	●

Historical analysis and current forecasts do not guarantee future results. The green/amber/red signal is based on top/middle/bottom third of distribution of outcomes of the universe of possible return streams. Black circle indicates there was not enough historic data for a reliable conclusion or the attribute was not applicable. Reliability is measured by the "hit rate"—the percentage of outcomes where real returns were positive. Ability to hedge US equities is measured by the 12-month rolling correlation with US equities. The data history is from 1970 or longest available history. Inflation regimes are proxied by the US 10-year TIPS implied breakeven inflation rate. Moderate inflation periods are defined as breakeven rate between 2% and 4%, and high inflation periods are defined as breakeven rate higher than 4%. Data from January 1, 1970, to May 31, 2021 | **Source:** AQR database, Bloomberg, Datastream, Fama-French database, FRED, Global Financial Data, New York Fed, Robert Shiller database and AllianceBernstein (AB)

The inflation-protection effectiveness of the equity value factor, whether long-only or long/short, is probably one of the most controversial points. In fact, claiming a strategic case for value at all has stoked dissention, so to claim inflation-hedging properties demands a higher level of belief. As we've pointed out in previous research ([Portfolio Strategy: Strategic Outlook for Factors, and Why They Are Needed in Portfolios](#)), value faces structural headwinds: technology destroying moats around industries, the shift in corporate expenditure to intangible assets and the tendency for passive flows to be steered to growth stocks.

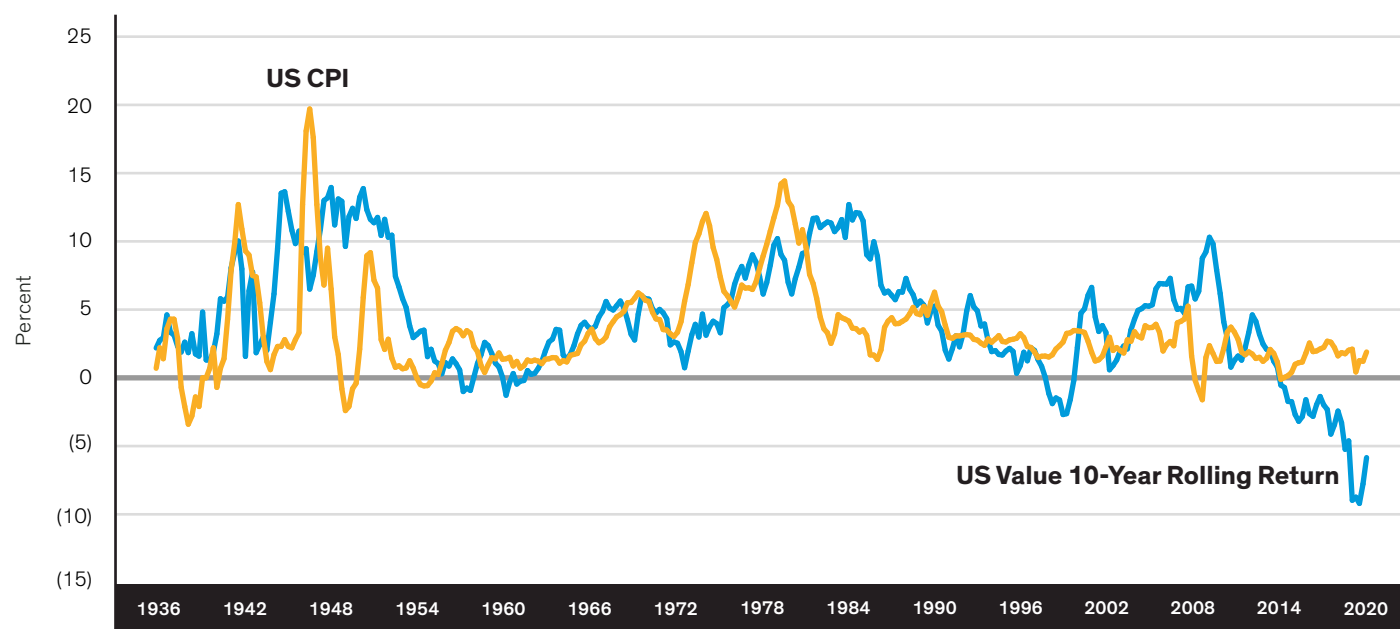
Nevertheless, there has been a strong and persistent relationship between inflation and the value factor, whether looking at daily data over the past decade or lower-frequency data over the past nine decades, as in *Display 6*. This relationship has persisted over many cycles and different policy regimes, so we think it's still robust—despite the headwinds. And a key rationale remains: value portfolios typically lean toward procyclical stocks, which tend to flourish when

economic growth recovers. This often happens in moderate-inflation regimes, when there is more risk of rising long-term rates, which tend to be more damaging for longer-duration growth stocks.

From a sector perspective, energy consistently stands out as an important allocation for hedging inflation. This relationship begs two questions: How much is due to the special circumstances of the oil-led 1970s inflation, and is that allocation now impaired by investors reallocating assets to accommodate ESG goals?

As to the 1970s question, we can show that a positive relationship remains outside that period. The question of ESG and the energy transition is more of a challenge: in the near term, the immediate challenge to energy is the interpretation of ESG goals, which entails simply excluding certain assets, such as energy and mining stocks. In our view, exclusion is somewhat myopic and will evolve in time to be more nuanced—for example, a focus on engagement and stewardship. There's also a possibility, in some cases, that corporations in these sectors can invest to become part of the solution.

DISPLAY 6: A STRONG, PERSISTENT RELATIONSHIP BETWEEN INFLATION AND THE VALUE FACTOR



Historical analysis and current forecasts do not guarantee future results.

The chart shows annualized 10-year rolling return for Ken French's value portfolios using the top quintile of cheapest stocks by price to book versus the most expensive quintile. Inflation is proxied by the change in the US CPI.

Data from June 1, 1926 to March 31, 2021 | Source: Datastream, Fama-French database

The only inflation hedge that may be more controversial than value is cryptocurrency and other digital assets, a topic we've covered in more detail in our recent inflation black book, [Inflation and the Shape of Portfolios](#). Mentioning crypto as a possible inflation hedge often produces raised eyebrows. Fair enough: over the last 18 months, crypto has been too volatile to be considered an investment by many asset owners, and it has possessed a very high correlation to equities and even momentum. So it's impossible to demonstrate, using any recent data, that crypto is additive to the other inflation hedges we discuss in this note.

Nevertheless, we think crypto assets should at least be considered. Essentially, they are zero-duration, non-fiat assets. In an environment where medium-term inflation might well be maintained through the debasement of fiat currencies, crypto has the potential to play a role similar to gold, subject of course to the (considerable) regulatory risks. In time, we think tokenized real assets could be even more effective in this regard, offering the possibilities of "financializing" hard-to-access physical real assets, lowering the cost of access and increasing liquidity of other real assets.

Augmenting Portfolios: Test Cases

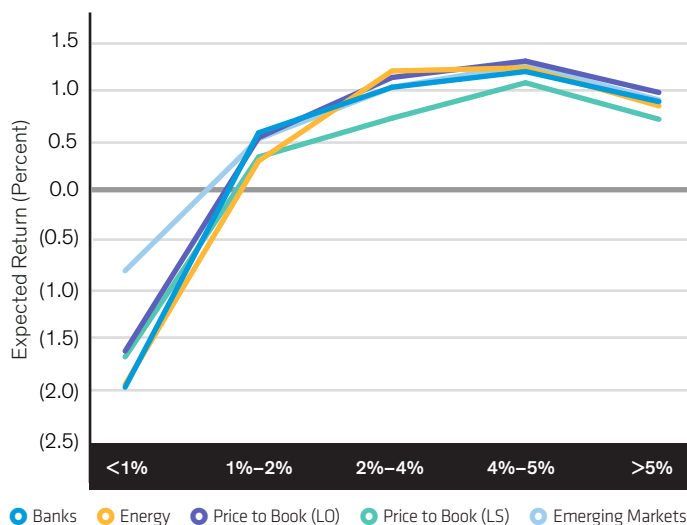
The analysis described so far is univariate: how does each return stream behave as inflation rises? But, as we alluded to in the discussion of diversification, the impact of inflation is really a portfolio question—not one of individual return streams.

This immediately raises questions about the constraints asset owners face in their investment mandates, the range of return streams they're allowed to invest in, risk levels and fees. Indeed, we think there may eventually be an outright clash between different risk measures—for example, between risk-as-volatility and the risk of a hardship outcome for beneficiaries (please see [Are We Human or Are We Dancer?](#)).

Given these uncertainties, we present a few test cases. What happens if we start with a 60/40 portfolio (as a basic default position) and progressively add exposure to assets that offer the potential for enhancing return and diversification as inflation rises? This is a simple bivariate analysis, not a full optimization, but we see it as an important step that draws out the influence of certain return streams and gives us a sense of what allocation is needed to make a difference.

In *Display 7*, we show expected returns, based on the past relationship with inflation since the 1970s, of portfolios that deviate from a 60/40 baseline by allocating 30% of assets to a range of the more prominent inflation hedging options—value equities (long-only and long/short), banks, energy or emerging equities—at different inflation levels. The returns create an inverted U-shaped curve, with the positive inflation characteristics of the portfolios deteriorating at high inflation levels. This makes sense: many of these assets are higher-risk allocations, but the risk premium rises at very high levels of inflation because forecasting cash flows and the policy environment becomes challenging when inflation is very high.

DISPLAY 7: HOW 60/40 PORTFOLIOS FARE WHEN ADDING AN INFLATION-HEDGING RETURN STREAM



Historical analysis and current forecasts do not guarantee future results. Expected return from a portfolio consisting of a 70% allocation to a traditional 60/40 portfolio and a 30% allocation to the specified inflation-hedging portfolio. We show the expected return of such a portfolio in different inflation bands based on historical returns segmented into inflation bands since 1970.

Data from January 1, 1970, to March 31, 2021 | **Source:** Bloomberg, Datastream, Fama-French database, Global Financial Data, New York Fed and AllianceBernstein (AB)

Relative to the simple 60/40 case, adding these other assets hurts performance at inflation levels under 1%; when inflation ranges from 1% to 2%, it produces results in line with the simple 60/40. At higher levels of inflation, there is a pickup in returns—even for this very simple case.

In *Display 8*, we show the risk/return impact, within a given inflation band, of adding progressively larger weights to the inflation-hedging portfolios, starting from a 60/40 base. For example, the second scatter chart shows the risk/return outcome in periods when inflation is in the 2%–4% range, starting from a 60/40 and progressively allocating in 10% increments to long-only value, REITs or emerging-market equities. These allocation changes tend to move the risk/return outcome up and to the right of the starting 60/40 position. The risk/return paths mapped out by these portfolios are even more stark in the higher-inflation outcome. But when inflation is low (*Display 8, top chart*), many portfolio combinations end up less effective than the simple 60/40.

Do ESG Investing and Inflation Hedging Have to Conflict?

Looking at the list of possible hedges against inflation, one is struck by the fact that many of them, at least at face value, seem to be the antithesis of ESG investing. For example, oil commodities, commodity equities, bitcoin (admittedly only arguably a hedge) and value investing in general raise the question: Can an investor hedge inflation and still be ESG-supportive?

While this is a real tension, it's not insurmountable. At the moment, the extreme point of tension is where an investor is explicitly prohibited from investing in commodities—either directly or through commodity equities. However, we think this somewhat myopic version of what constitutes ESG investing is due to evolve, with a more thoughtful and nuanced approach likely to take hold as this mode of investing matures.

Public and private capital flows into energy transformation imply that specific commodities and corporations in that sector can be viewed as part of the solution—and it hints at potential pricing power. In the crypto world, it is the energy consumption of bitcoin that attracts ire, though there are also broader ESG considerations. Crypto may enable the provision of banking services to those without them. An improved crypto environmental footprint is also possible, for example, using more renewables for mining and shifting to proof-of-stake from proof-of-work. We also think it's likely that a greater share of ESG-directed investment will evolve to a focus on stewardship and engagement, rather than a stated list of excluded investment categories.

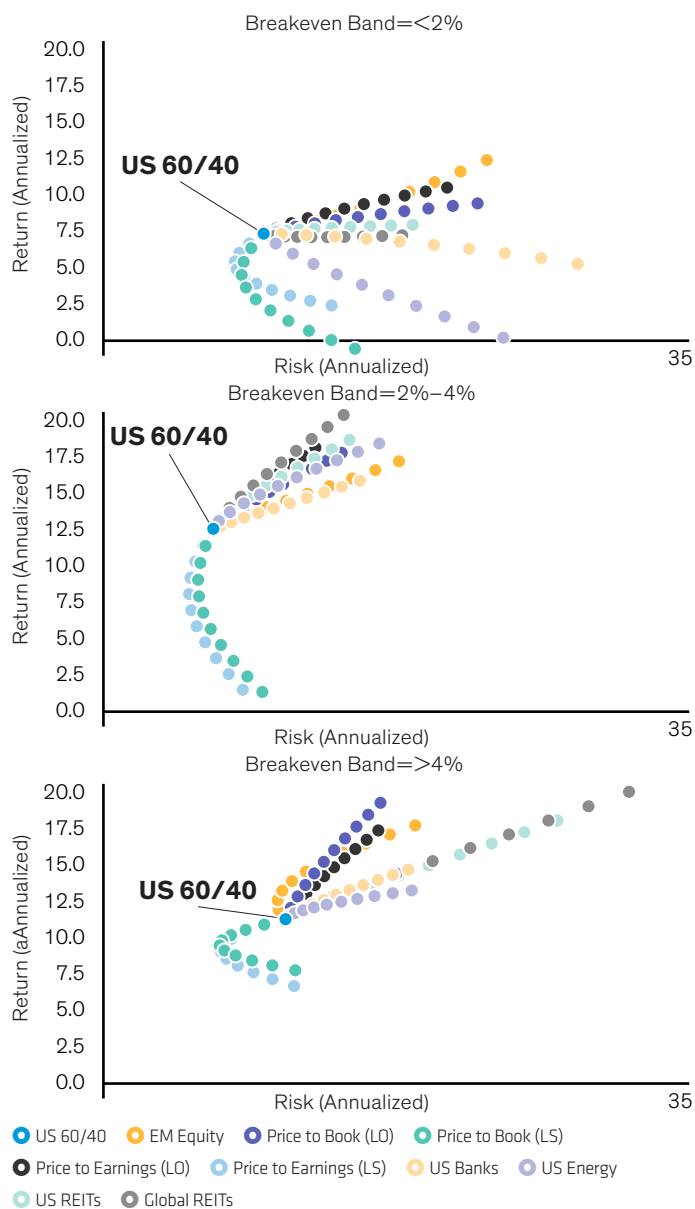
So, while there seems to be a clash now, we think the next generation of ESG investment mandates awarded will enable a more nuanced approach to ESG.

Rich or Cheap? Introducing the Valuation Lens

Much inflation-hedging analysis tends to focus on historical returns, but we see two other important elements: an out-of-the-box approach to considering the policy environment and valuations. It's true that valuation has generally been a poor guide to success in the past decade, both at the asset class and market level, however we see reasons (with hindsight, admittedly) for the ineffectiveness.

Given generally high valuations across asset classes and very wide valuation spreads (for example, the spread between cheap and expensive stocks is at the top end of its post-World War II range), we think it's important to value the approaches to constructing portfolios for a higher-inflation environment.

DISPLAY 8: RETURN AND RISK IMPACT FROM ADDING INFLATION HEDGES TO 60/40 PORTFOLIO



Historical analysis and current forecasts do not guarantee future results. The figure shows the trade-off between annualized return and volatility by adding inflation hedges to the model 60/40 portfolio. Assets are added to the 60/40 portfolio in increments of 10%, and the impact on the overall portfolio in each inflation band is shown. The period of analysis runs from January 1970 to June 2021. Inflation bands are proxied by the 10-year TIPS implied breakeven inflation rate.

Data from January 1, 1970, to March 31, 2021 | **Source:** Bloomberg, Datastream, Fama-French database, Global Financial Data, New York Fed and AllianceBernstein (AB)

In *Display 9*, we show a z score of current valuation compared with history for key assets. To make the valuations comparable across asset classes, we show an earnings yield for equities and a yield for fixed income, expressed as the z score of the current yield versus history. We then invert the z score so the most expensive assets are positive and the cheapest are negative.

On this basis, a 60/40 portfolio is 1.27 standard deviations more expensive than its post-1970 range, with 10-year government bonds 1.49 standard deviations more expensive and US equities 1.12 standard deviations more expensive. TIPS, often regarded as inflation-hedging assets, do not seem attractive on this basis—they're even more expensive at 2.4 standard deviations. So, a knee-jerk allocation to gravitate to TIPS raises profound valuation questions.

DISPLAY 9: VALUATION COMPARED WITH HISTORY OF KEY ASSETS (Z SCORES)

Start date	Asset	Valuation (z score)
Jan-70	US Equities	1.12
Jan-85	EM Equities	0.96
Jan-70	Japan Equities	(0.27)
Jan-70	US 10-Year Bond	1.49
Jan-70	60/40	1.27
Sep-71	US TIPS 10-Year	2.43
Jan-70	Municipal Bonds	1.81
Jan-95	US Metals and Mining (relative)	(1.78)
Jan-95	US Energy (relative)	(0.60)
Jan-95	US Banks (relative)	(0.97)
Jan-70	US PE L/O	(0.58)
Jan-70	US PE L/S	(1.28)

Historical analysis and current forecasts do not guarantee future results.

Data starts from January 1970 or earliest available date (indicated in start date column) and runs through June 2021. Equity valuations are cyclically adjusted earnings yield (1/CAPE ratio). Bond valuation is based on yield. Relative valuation is measured as the relative 12-month forward earnings yield (1/PE) relative to the broader US market. US PE factor valuation is measured as the 12-month trailing earnings yield. Z score of the 60/40 portfolio is calculated as $0.6 \times \text{z score of US equities}$ and $0.4 \times \text{z score of US 10-year government bonds}$. Higher z score value indicates a higher premium to historic valuation.

Data from January 1, 1970, to June 30, 2021

Source: Datastream, Fama-French database, Federal Housing Finance Agency, FRED, Freddie Mac, Global Financial Data, MSCI and AllianceBernstein (AB)

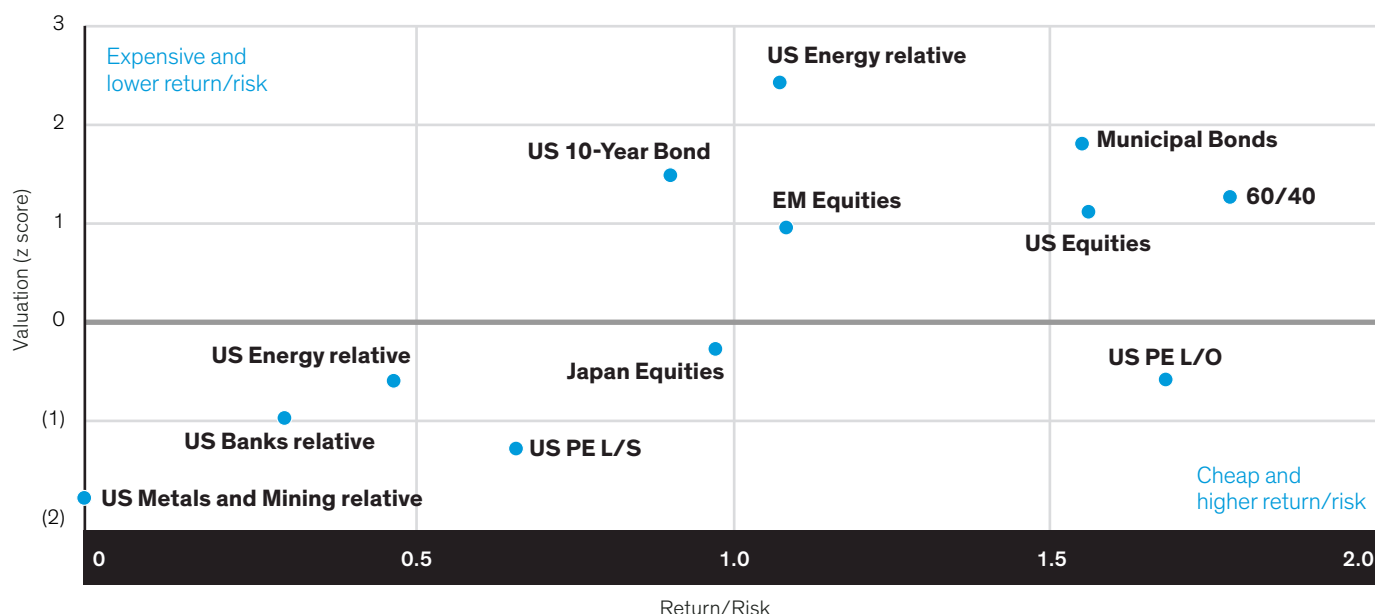
Other inflation-hedging assets are considerably cheaper. Long-short equity value is 1.28 standard deviations cheaper (over the period since 1970), while long-only value, energy and banks are relatively cheap historically. So, while valuation may not be a useful guide for allocation tactically, it does potentially point toward a more strategic role for value factor-type allocations.

In *Display 10*, we plot the average return on a range of assets if inflation is in a 2%–4% range against the z score of current valuations compared with history. This only looks at one possible inflation

scenario, but it again implies a wide spread of possible valuations on assets that can help portfolios weather a higher-inflation outcome.

TIPS, often regarded as a knee-jerk reaction to a higher inflationary regime, are the most expensive allocation shown, with a risk/return benefit only in the middle of the range. Allocations such as the equity value factor appear, at face value at least, to be significantly more attractive comparing risk/return to valuation basis. Of course, there are significant differences in terms of liquidity and drawdown risk that investors should consider alongside valuation.

DISPLAY 10: VALUATIONS VS. RISK/RETURN RATIO WHEN EXPECTED INFLATION IS 2%–4%



Historical analysis and current forecasts do not guarantee future results.

The chart shows current asset valuation measured by the z score compared with historical average against the return/risk ratio calculated as annualized return divided by annualized standard deviation. It is conditioned on the period where the US 10-year breakeven implied inflation rate was in the range of 2% to 4%. The data history is from 1970 or longest available history. PE long-only factor shows the market-cap weighted absolute return of a portfolio of top quintile-ranked stocks based on PE multiples in US equities. PE long/short factor shows the market-cap weighted return of a portfolio that is long the top quintile-ranked stocks and short the bottom quintile-ranked stocks based on PE multiples in US equities.

Data from January 1, 1970 to June 30, 2021 | Source: Datastream, Fama-French database, FRED, Global Financial Data, MSCI and AllianceBernstein (AB)

Conclusion

In previous research (please see [Alpha, Beta and Inflation: An Outlook for Asset Owners](#)), we've pointed out that inflation is one of the preeminent macro issues that investors face. Inflation isn't just about near-term risks from the reopening trade and the Fed's possible reaction; it's about the post-pandemic strategic outlook for inflation. This makes our view on inflation critical to the post-pandemic outlook for strategic asset allocation—unshaken by a few weeks of declines in the 10-year inflation breakeven rate.

While achieving positive real returns is a challenge, we believe it's equally important to hold portfolio assets that can continue to diversify if inflation rises—even moderately. We think it's unavoidable that investors who must achieve a given level of real return must raise risk levels.

The magnitude of exposure needed to achieve a given level of real return and inflation “beta” varies across a broad range of potential inflation-hedging assets—and has implications for overall portfolio risk. This analysis suggests various potential approaches to an overall portfolio allocation.

In addition to genuine disagreements over the inflation prognosis, there is some disagreement about what constitutes an inflation hedge. This ambivalence is due in part to the nonlinear link between inflation and asset returns, and in part because investors with different time horizons have diverse goals when it comes to hedging inflation.

For many risk assets, there's a “sweet spot” of low-to-moderate inflation, which is a benign environment, while deflation and high inflation are negatives. Moderate or genuinely high inflation regimes are very different from the environment we've become used to, but there's also a world of difference between them, as we've shown in this note. Likewise, at the early stages of a glide path, the key inflation-driven consideration is an ability to deliver positive real growth; more mature portfolios will likely care more about explicitly hedging inflation risk.

There is a wide spread of valuations among the options for exposures to improve portfolio risk and return during inflationary episodes. Much of this result stems from many asset classes being fully valued, or even expensive, while some factors and sectors within asset classes are trading cheaply compared with their long-run history. This kind of analysis often relies on the historical link between given policy paths and return streams, but we think valuation also has an essential role to play at strategic horizons.

In the strategic outlook after COVID-19, inflation is likely to be higher. Looking through the short-term discussion about whether inflation is transitory or not and how central banks may or may not respond, our key conclusion is that there needs to be a significant shift in the strategic composition of portfolios.

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