White Paper
Multi-Asset Solutions

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What 30 Years of Real Asset Behaviour Tells Us About Inflation Hedging

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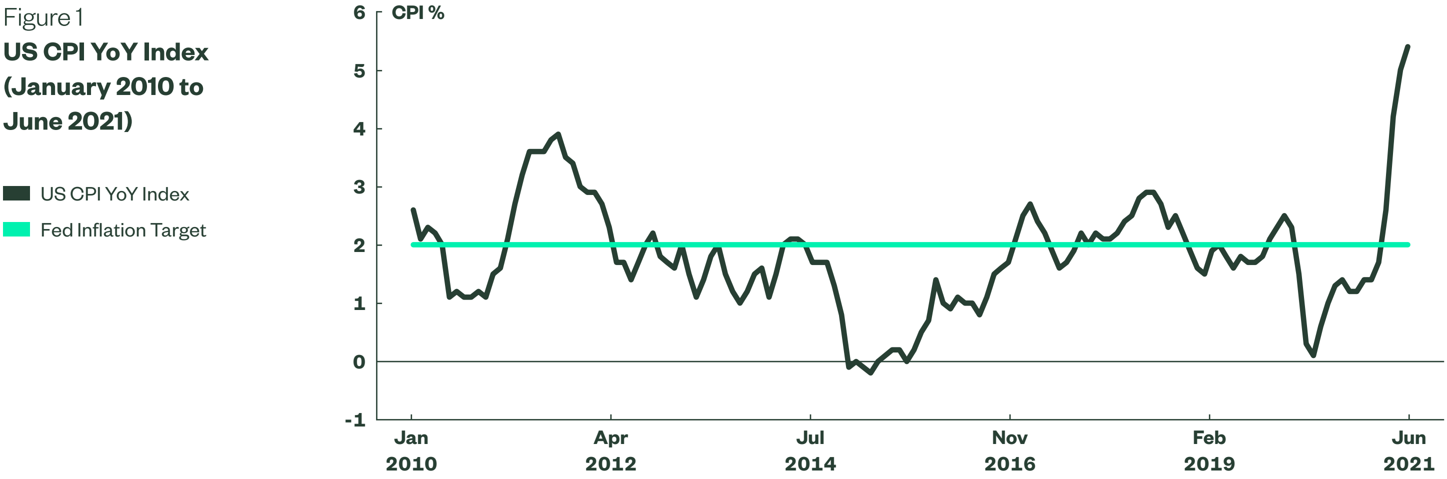
Executive Summary

One of the essential debates is whether inflation will be sustained or just transitory. Consumer price inflation is surging globally and an intense debate is raging as to whether this is merely a transient phenomenon reflecting abnormally low base effects or something of a more lasting nature. The Federal Reserve (Fed) and other central bank policymakers have little doubt that costs for many goods and services will jump, but they do not expect this to be a long-term persistent trend. Rather they attribute this as a one-off as the economy recovers from the pandemic and not the start of a more persistent inflation problem. We are broadly in agreement and expect the rise in inflation to be temporary, but there are a number of risks investors should consider. Despite being transitory, it could be more prolonged than many investors anticipate. We see upside risks to inflation in the short-term, but to us inflation is a process, not an event. Although we see incipient shifts that could push us into a higher inflation regime over time, it is not yet clear if something systemic is changing the inflation process itself. Understanding how assets perform across different inflation regimes can help investors to build in the appropriate hedge.

The Macro View

The world has been in a very benign inflationary regime for much of the last 30 years and over the last 10 years in particular, inflation has fallen well short of central bank targets.

Figure 1
US CPI YoY Index (January 2010 to June 2021)



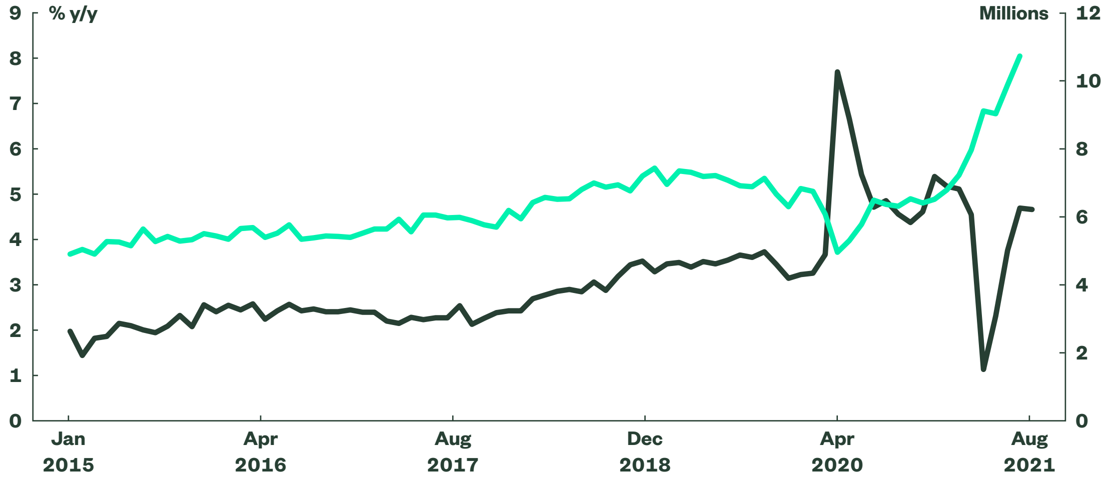
Source: Bloomberg Finance L.P., as of 30 June 2021.

COVID has provided a shock to the system and as a result we have seen consumer price inflation surge globally. An intense debate is now raging as to whether this is merely a transient phenomenon reflecting abnormally low base effects or something of a more lasting nature. We see upside risks to inflation in the short-term, but to us inflation is a process, not an event. Although we see incipient shifts that could push us into a higher inflation regime over time, it is not yet clear if something systemic is changing the inflation process itself, as we discussed in a recent paper **here.**

The Fed's narrative on inflation has been consistent ever since the first COVID wave receded — short-term supply constraints are pushing up the headline inflation, and the pressure will moderate once we see supply catching up to demand. The Fed is the only central bank to have formally adopted the Average Inflation Targeting framework (AIT) so far. It has most dramatically moved away from the prior worldview in which policy is adjusted based on expected outcomes, and has instead embraced a new reaction function, where policy only responds to actual outcomes. In such a scenario, the Fed has remained non-committal to initiate tightening measures until they see a holistic improvement in the labour market and persistent signs that inflation will stay at, or above, its target range.

The evolution of wage growth will be one of the necessary (though not necessarily sufficient) conditions for sustained higher inflation. An unexpected jump in wage inflation since June has given the inflation debate a new twist. We are once again looking at wage inflation that is well above pre-COVID levels. It may still be early days, but it seems we are not far from seeing the conditions for persistently high wage inflation being met. Higher inflation notwithstanding, the progress in the labour market will also play an important role although much remains to be done to get us back to pre-COVID labour market health.

Figure 2
Average Hourly Earnings, Job Openings (January 2015 to August 2021)



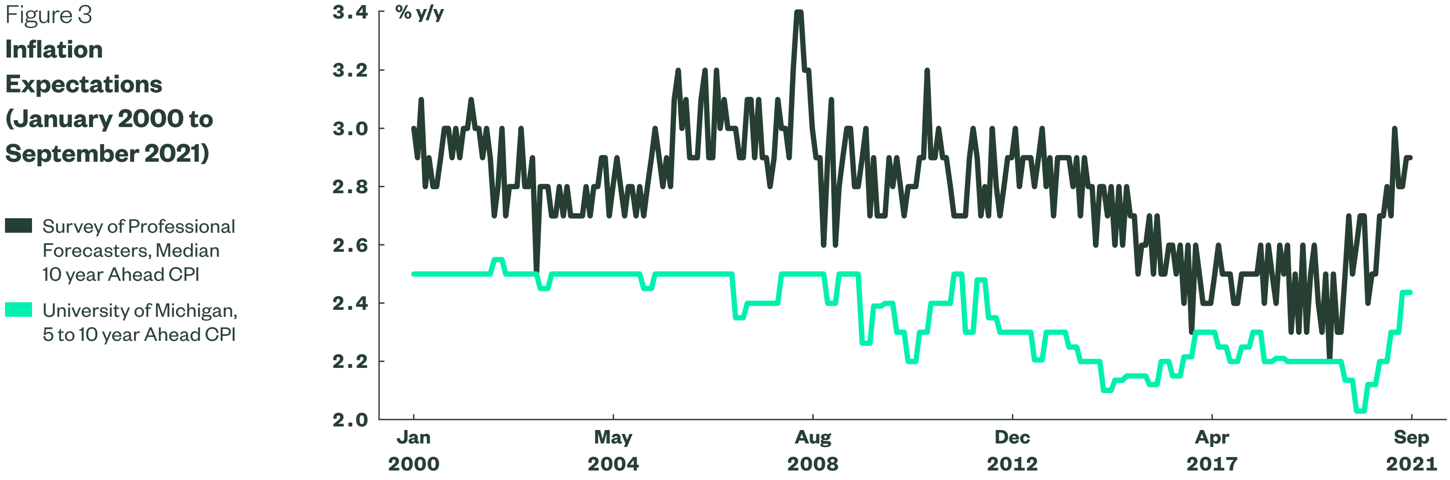
Source: Macrobond, U.S. Bureau of Labor Statistics (BLS), Archival St. Louis Fed (ALFRED). As of 31 August 2021.

Inflation Expectations

Inflation expectations are important inputs into wage and price setting, and they provide credibility to the central bank's inflation objective. If inflation expectations start drifting away from the central bank's objective, they could become permanently "un-anchored" in the long run leading to "second-round effects". This is the idea that even a temporary benign period of rising prices can turn into a nastier, more persistent inflation episode if it shifts people's "expectations".

Figure 3 reports median inflation forecasts from the quarterly Survey of Professional Forecasters (SPF) conducted by the Federal Reserve Bank of Philadelphia and the monthly Surveys of Consumers conducted by the University of Michigan (Michigan survey). The data does suggest some discrepancy between households and the market in the medium- to long-term. Respondents in the SPF forecast CPI inflation at 4.9% for the end of 2021, while households forecasted an overall price growth of 4.6% a year ahead.

Figure 3
Inflation Expectations (January 2000 to September 2021)



Source: Macrobond, University of Michigan, Federal Reserve of Philadelphia. As of 1 September 2021.

The factors that underlie the recent surge in inflation are quite unique. High and sticky inflation in the months ahead may lead to higher levels, and extended periods, of inflation.

Inflation Regimes

Given expectations for higher inflation in the short-term with the risk that it could be prolonged, investors face a challenging environment. While bonds typically help to provide some downside risk mitigation to a portfolio, when stocks decline, stock and bond returns tend to become more correlated in highly inflationary environments.

To help understand how assets perform through different inflationary environments, it is useful to first define inflation regimes.

We analysed asset class performance through five distinct inflation regimes. In Figure 4 we outline the definition we have used for each regime.

Figure 4
Inflation Regimes

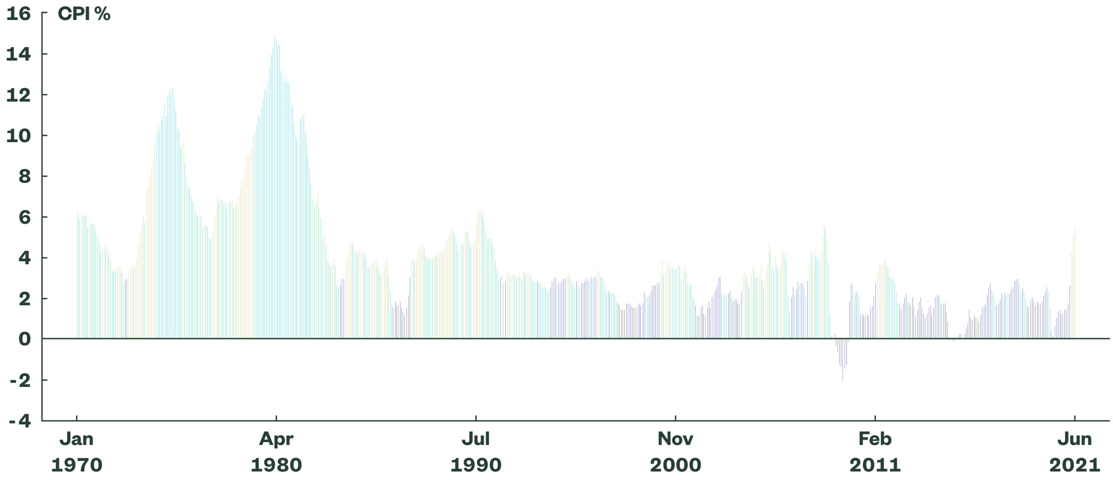
Regime	Definition
1. Deflation	Periods where inflation is sub 2%; and trending lower
2. Disinflation	Periods where inflation is within a 2%–10% range; but trending lower
3. Reflation	Periods where inflation is sub 2%; but trending higher
4. Inflation	Periods where inflation is within a 2%–10% range; but trending higher
5. Hyperinflation	Inflation in excess of 10%; irrespective of whether it is rising or falling

The information contained above is for illustrative purposes only.
Source: State Street Global Advisors.

Next, we need to specify the measure of inflation to use. For the purpose of this paper, we have used US CPI as a barometer for global inflation given this is the most closely followed metric of inflation for global investors. In Figure 5, we look back at US CPI through the lens of the inflation regimes.

Figure 5

Historical Regimes (January 1970 to June 2021)



Source: State Street Global Advisors, Bloomberg Finance L.P., as of 30 June 2021.

The period of hyperinflation in the 1970's is notable as it serves as a cautionary tale of a "transitory" issue much like the one being described today. It was caused by rising energy and food prices which became a stellar example of stagflation. Due to higher expectations of prices, central banks could no longer exploit the trade-off between inflation and unemployment. Instead, both rapidly rising prices and widespread joblessness prevailed.

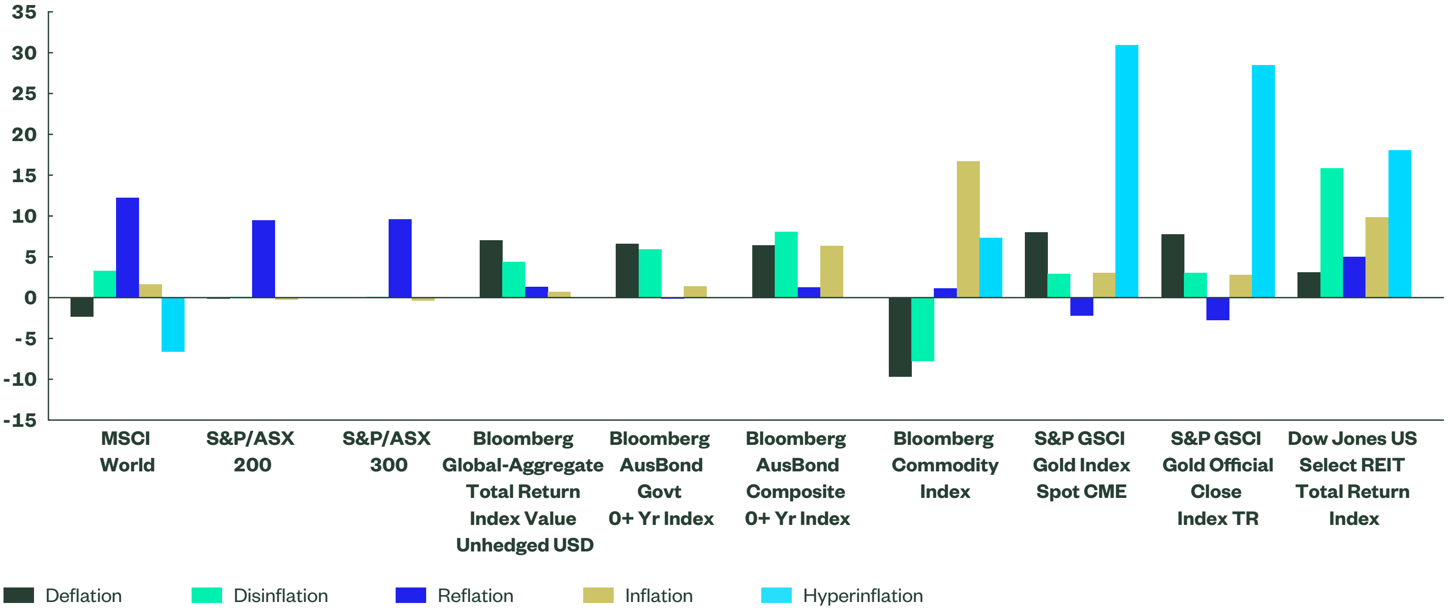
Over the last twenty years, investors have benefited from benign levels of inflation. Inflation levels have been consistently below central bank targets and provided a tailwind to both equity and bond returns. However, investors are again concerned about inflation and the impact it will have on their investments.

We should note that different inflation regimes will have different drivers, which may impact asset class performance in different ways in the future. However, historical observations do provide a point of reference.

Inflation Impact on Investors

Figure 6 reflects the performance of typical growth, defensive and inflation hedging assets across the different inflation regimes. While US CPI is used as the broad barometer to define the regimes, the following real returns are for Australian investors and adjusted based on Australian CPI.

Figure 6
Asset Class Real Returns Across Inflation Regime (January 1971 to June 2021)



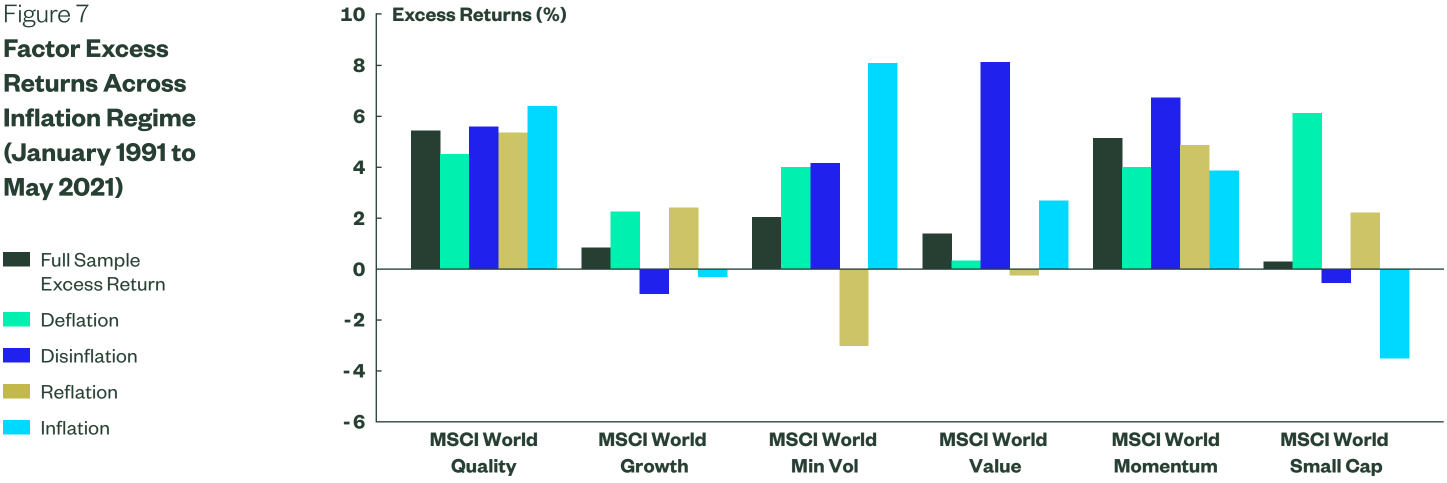
Index returns are unmanaged and do not reflect the deduction of any fees or expenses. Index returns reflect all items of income, gain and loss and the reinvestment of dividends and other income as applicable. All the index performance results referred to are provided exclusively for comparison purposes only. It should not be assumed that they represent the performance of any particular investment. All returns are calculated in AUD.
Source: State Street Global Advisors, Bloomberg Finance L.P., as of 30 June 2021.

Equities and Smart Beta

Figure 6 shows that both International and Australian equities exhibit positive real returns during reflationary times but remain largely muted during deflationary regimes. Lower and declining inflationary environments will provide a tailwind to equity real return while higher and rising inflationary regimes will provide a headwind. Returns during the 'rising inflation' phases have been consistently lower than returns during 'falling inflation' phases.

Across equities, we also looked at the impact of inflation on smart beta factors relative to MSCI World (in AUD). Based on the historical data, and reflected in Figure 7, all factors to varying degrees show positive excess return over the full sample period (January 1991 to May 2021). This aligns with the academic research that supports factor investing and harvesting factor risk premia over the long-term.

Figure 7
Factor Excess Returns Across Inflation Regime (January 1991 to May 2021)



Data: MSCI World Quality Index for MSCI World Quality; MSCI World Growth Index for MSCI World Growth; MSCI World Minimum Volatility Index for MSCI World Min Vol; MSCI World Value Index for MSCI World Value; MSCI World Momentum Index for MSCI World Momentum; MSCI World Small Cap Index for MSCI World Small Cap. Index returns are unmanaged and do not reflect the deduction of any fees or expenses. Index returns reflect all items of income, gain and loss and the reinvestment of dividends and other income as applicable. All the index performance results referred to are provided exclusively for comparison purposes only. It should not be assumed that they represent the performance of any particular investment. All returns are calculated in AUD.
Source: State Street Global Advisors, Bloomberg Finance L.P., as of 31 May 2021.

When we look a little closer at the different inflation regimes in Figure 7, we see some dispersion in excess return across the different factors.

- Quality & Momentum are two factors that show positive and relatively stable excess returns across all regimes.
- Growth shows mixed results across regimes, showing weaker performance across more muted environments of inflation and disinflation, but positive performance across deflationary and reflationary regimes.
- Minimum Volatility has the highest excess return in inflationary regimes, not only for itself but compared to all factors. However, it has historically underperformed in reflationary regimes.
- Value is generally positive across most regimes despite its more recent medium-term underperformance. It is particularly strong in the disinflation regimes and still provides positive excess returns in inflationary regimes as well.
- Small Cap is similar to growth and underperforms in disinflationary and inflationary regimes but has historically exhibited the strongest excess return across all factors in deflationary regimes.

For investors concerned about equity market performance through different inflationary regimes, they may consider adding some factor exposures to their portfolios. While timing factors can be a difficult task as highlighted in our **recent paper,** a multi-factor approach that combines multiple factors may help investors navigate not only different inflationary regimes but also market and economic cycles. When thinking about which factors to gain exposure to, Minimum Volatility historically performed the best in inflationary regimes, while Value has performed the best in the disinflation regime. Given the consistent performance of Quality across all regimes, the combination of the three may provide a nice balance across the factors across the varying regimes.

Fixed Income

Across the defensive part of a portfolio, bonds including TIPS have performed in inflationary environments. There are also more recent examples of how changing inflation expectations can impact bond yields and prices. Recent rising inflation expectations saw fixed income investors get particularly jittery, and there was a sharp rise in 10-yr Treasury yield up to 1.7% in March 2021 before coming down to ~1.2% in August 2021, which is still much higher than the 0.5%–0.6% level we saw in March 2020 when COVID first hit globally.[1] In rising inflation regimes, bonds have historically offered poor relative performance to real assets such as commodities and REITs, as inflation erodes the purchasing power of a bond's future cash flows.

Real Assets

Inflation hedging assets, such as real assets and commodities perform well in inflationary environments. The attractiveness of REITs stems from the nature of their structure. With consistent income being generated, the regular income can provide a good option in a low yield environment. At the same time, in a rising inflationary environment, REITs can provide some inflation hedging because of their ability to increase rents and then pass that income to investors. Considering that REITs are required to pay out 90% of their taxable income to shareholders in the form of dividends due to their legal structure, investor are assured of a regular income stream. Because rents and property values tend to increase during rising inflation, the REITs whose properties are able to capitalise on that can provide an inflation hedge.

Commodities also perform well in inflationary regimes. Commodities account for about 40% of CPI weights, so it follows by construction that commodity prices and inflation indices are positively related. In rising inflationary environments, the diversification benefits of commodities shine as these assets are likely to reprice higher to reflect the higher future prices of materials.

Investors may also consider precious metals, in particular Gold. The return of gold tends to be higher when US dollar is weaker. The price of gold tends to rise when real interest rate decreases, with a very strong negative correlation of -0.9 since 2003;[2] The negative correlation was stronger when real interest rate became lower.

[1] Source: Bloomberg Finance L.P.

[2] Source: State Street Global Advisors.

Inflation Protection for Multi-Asset Portfolios

We have demonstrated that real assets can act as an inflation hedge and next look at them in the context of a multi-asset portfolio.

Figure 8 outlines five portfolios. Portfolio 1 is the reference portfolio while portfolios 2–5 included a 15% allocation to each of the inflation hedging asset. Given the lower beta nature of these assets, we have funded these allocations from both the equity and bond allocations, reducing each by 7.5%.

Figure 8
Multi-Asset Portfolios — with Inflation Hedged

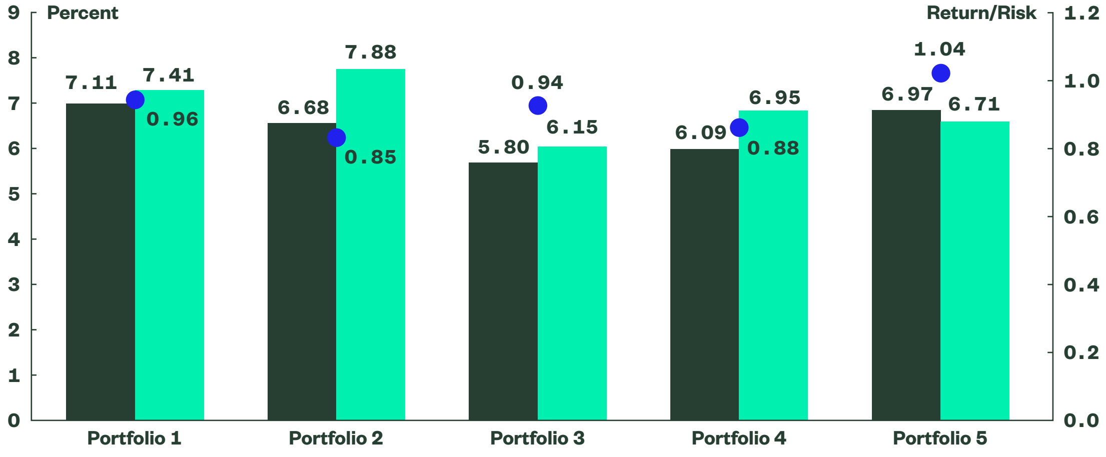
Strategy	Description
Portfolio 1	60% Equities + 40% Bonds
Portfolio 2	52.5% Equities + 32.5% Bonds + 15% REITs
Portfolio 3	52.5% Equities + 32.5% Bonds + 15% TIPs
Portfolio 4	52.5% Equities + 32.5% Bonds + 15% Commodities
Portfolio 5	52.5% Equities + 32.5% Bonds + 15% Gold

Data: Equity = MSCI World Index, Bonds = Bloomberg Barclays Global-Aggregate Total Return Value Hedged AUD, REITs = S&P Global REIT Index, TIPS = Bloomberg Global Inflation-Linked Index and US TIPS TR Index Hedged AUD, Commodities = Bloomberg Commodities Index and S&P GSCI Gold Total Return CME.
Source: State Street Global Advisors, Bloomberg Finance L.P., as of 31 May 2021.

Figure 9 reflects the performance of each of the portfolios over the full sample period (January 1991–31 May 2021).

Figure 9
Multi-Asset Portfolios — Performance Returns and Risk (January 1991 to May 2021)

■ Return p.a
🟩 Risk p.a.
■ Return/Risk (RHS)



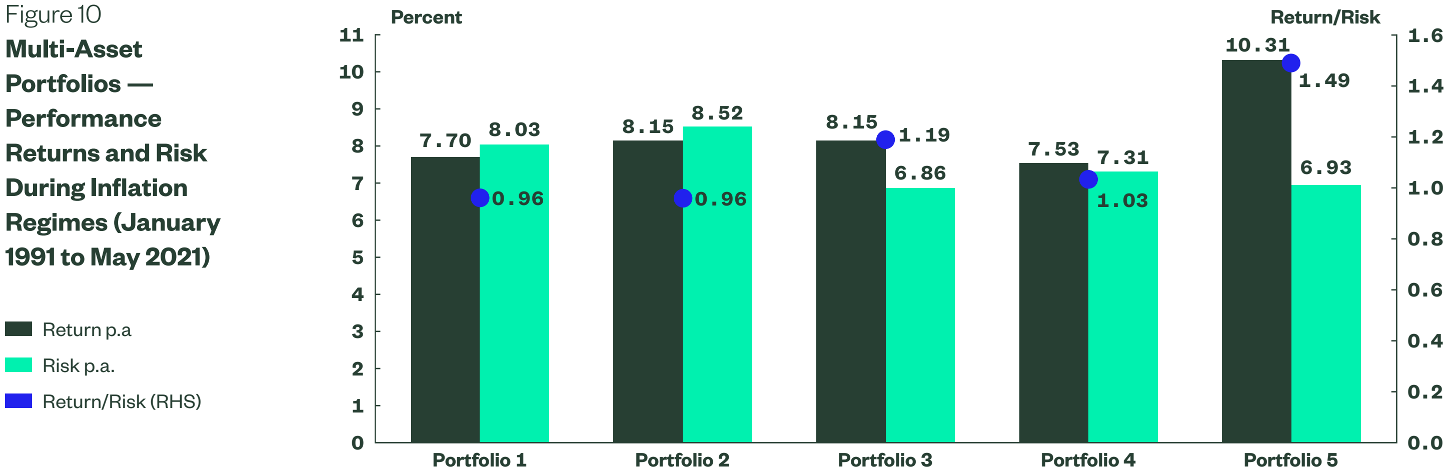
Blended returns were achieved by mathematically combining the actual performance data of equities, bonds and real asset indices at different weights. The performance assumes no transaction and rebalancing costs, so actual results will differ. All returns are calculated in AUD.
Source: State Street Global Advisors, Bloomberg Finance L.P., as of 31 May 2021.

Compared to the reference 60/40 portfolio (Portfolio 1), all the portfolios that include a 15% allocation to one of the inflation hedging assets shows a deterioration in return. Portfolio 5 which includes a 15% allocation to Gold, provides the closest return to the reference portfolio, only underperforming by 14bps, while also reducing risk, leading to the highest return/risk ratio among the 5 portfolios. Other than Portfolio 2 (includes REITs), the inclusion of all other inflation hedging assets help to reduce risk.

Over the full sample period, it is not surprising to see the inclusion of the inflation hedging assets detracting from overall performance. The benefits they can provide should be more apparent when we focus on specific inflation regimes. Given the current market environment the most relevant regimes are the reflation and inflation regimes.

In Figure 10, we look at each of the previously outlined portfolios in the "inflation regime" as previously defined in Figure 4. When isolating the data to this regime, we see a marked improvement to the risk return profile in almost all the portfolios relative to the reference portfolio.

Figure 10
Multi-Asset Portfolios — Performance Returns and Risk During Inflation Regimes (January 1991 to May 2021)



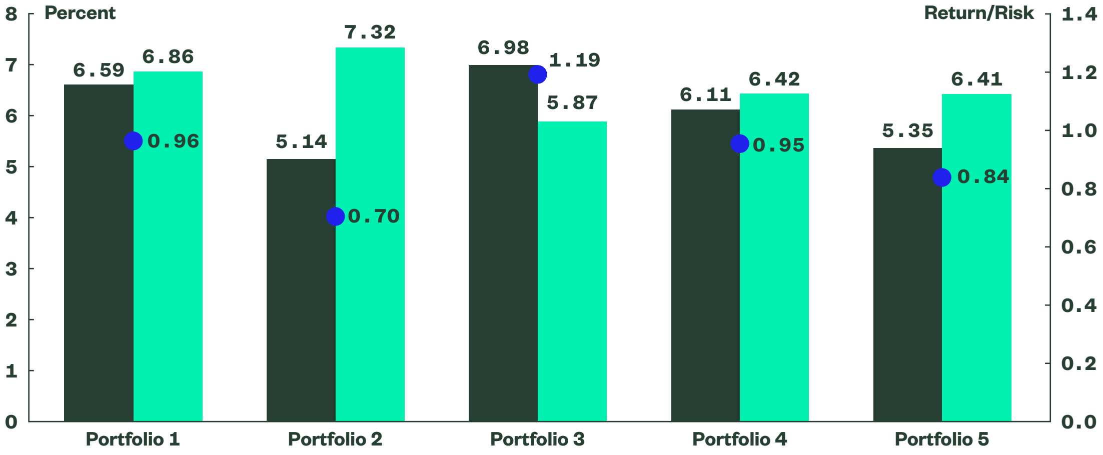
Blended returns were achieved by mathematically combining the actual performance data of equities, bonds and real asset indices at different weights. The performance assumes no transaction and rebalancing costs, so actual results will differ. All returns are calculated in AUD.
Source: State Street Global Advisors, Bloomberg Finance L.P., as of 31 May 2021.

Almost all portfolios reflect improved portfolio characteristics except Portfolio 2 (includes REITs) which matches the return/risk ratio of the reference portfolio. Portfolio 5 (includes Gold) shows the greatest improvement, not only enhancing the return to the highest, but it also has the second lowest level of risk resulting in the highest return/risk ratio. Portfolio 4 (includes commodities) only marginally underperforms the reference portfolio but does reflects a much lower overall risk level resulting in a higher return/risk ratio than Portfolio 1.

The analysis and observations reflect the positive benefits from including inflation hedging assets in an inflation regime with Gold appearing to be the strongest contender in this regime.

In Figure 11, we look at the impact in a reflation regime. Here the impact from inflation hedging assets is more mixed.

Figure 11
Multi-Asset Portfolios — Performance Returns and Risk During Reflation Regimes (January 1991 to May 2021)



- ■ Return p.a
- 🟩 Risk p.a.
- 🟦 Return/Risk (RHS)

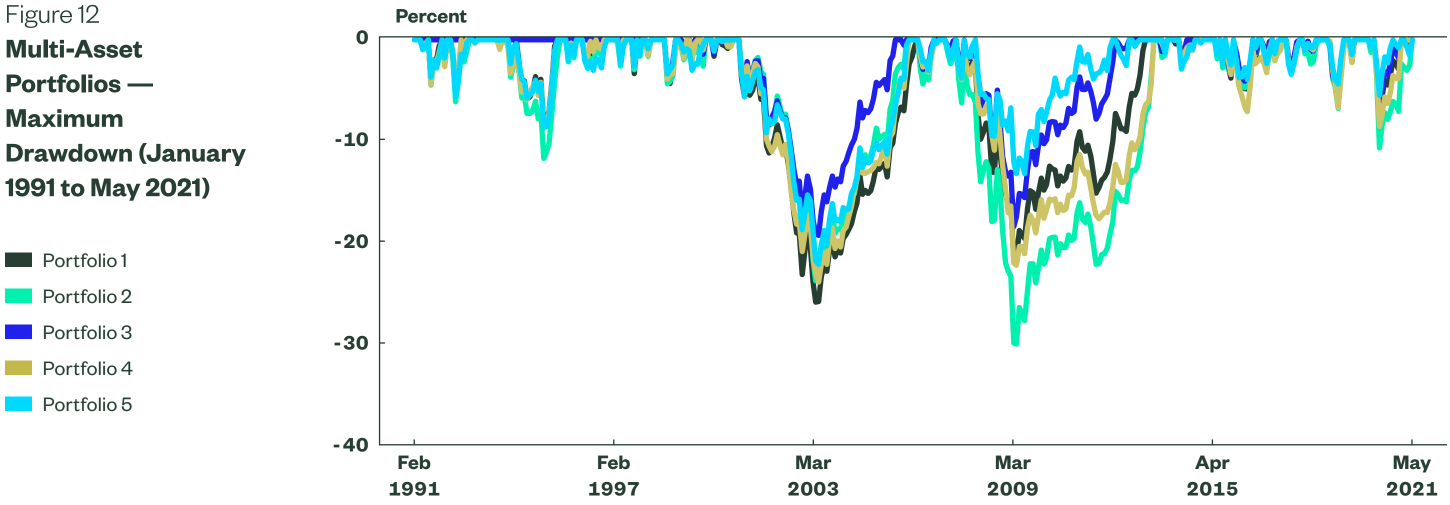
Blended returns were achieved by mathematically combining the actual performance data of equities, bonds and real asset indices at different weights. The performance assumes no transaction and rebalancing costs, so actual results will differ. All returns are calculated in AUD.
Source: State Street Global Advisors, Bloomberg Finance L.P., as of 31 May 2021.

In the reflationary environment, Portfolio 3 (includes TIPS) shows the most improvement overall. It benefits from a higher return, as well as lower risk, leading to the highest return/risk ratio. Portfolio 2 (includes REITs) is the least efficient portfolio in this regime, reflecting both a lower return and higher risk. Portfolio 4 (includes commodities) reflects a lower return and risk but overall efficiency based on return/risk ratio is equivalent to the reference portfolios. Finally, Portfolio 5 (includes Gold) also underperformed the reference portfolio. Despite its lower risk, it is still less efficient than the reference portfolio with a lower return/risk ratio. For those investors that can access them, TIPS show the greatest potential in this regime.

Inflation Protection and Drawdowns

Next, we look at the impact of these inflation hedging assets on portfolio drawdown. In Figure 12, we compare the drawdowns for the various portfolios over the full sample period.

Figure 12
Multi-Asset Portfolios — Maximum Drawdown (January 1991 to May 2021)



Blended returns were achieved by mathematically combining the actual performance data of equities, bonds and real asset indices at different weights. The performance assumes no transaction and rebalancing costs, so actual results will differ. All returns are calculated in AUD.
Source: State Street Global Advisors, Bloomberg Finance L.P., as of 31 May 2021.

Portfolio 2 (including REITs) experiences drawdowns that are similar and in some instances larger than the reference portfolio. Given the higher equity beta of REITs this is not surprising. In terms of helping to manage drawdowns, Portfolio 3 (including TIPS) and Portfolio 5 (including Gold) provide significant downside protection.

Conclusion

From our analysis, we conclude that during historical inflationary/reflationary regimes, the addition of TIPS, Gold & Commodities improve the performance of the traditional 60:40 portfolio. Despite the fact that the addition of commodities increases the risk profile and drawdown risk of the portfolio, commodities can be a useful asset to include to hedge inflation particularly in periods of rising inflation. Gold and TIPS can also provide significant downside protection in these environments. As demonstrated, all of the inflation hedging assets can act as inflation hedges. Investors will need to consider the underlying drivers of inflation to deem which is most appropriate. However, we observe that a 15% allocation to any of these assets may be a useful addition to a portfolio when inflation is a key concern. They can provide downside protection, and aid in lowering portfolio volatility.

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- Build from breadth
- Invest as stewards
- Invent the future

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* Pensions & Investments Research Center, as of December 31, 2020.

† This figure is presented as of June 30, 2021 and includes approximately $63.59 billion of assets with respect to SPDR products for which State Street Global Advisors Funds Distributors, LLC (SSGA FD) acts solely as the marketing agent. SSGA FD and State Street Global Advisors are affiliated.

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Investing involves risk including the risk of loss of principal. Generally, among asset classes, stocks are more volatile than bonds or short-term instruments. Government bonds and corporate bonds generally have more moderate short-term price fluctuations than stocks but provide lower potential long-term returns. U.S. Treasury Bills maintain a stable value if held to maturity, but returns are generally only slightly above the inflation rate.

Increase in real interest rates can cause the price of inflation-protected debt securities to decrease. Interest payments on inflation-protected debt securities can be unpredictable. Investing in commodities entail significant risk and is not appropriate for all investors. Commodities investing entail significant risk as commodity prices can be extremely volatile due to wide range of factors. A few such factors include overall market movements, real or perceived inflationary trends, commodity index volatility, international, economic and political changes, change in interest and currency exchange rates. There are risks associated with investing in Real Assets and the Real Assets sector, including real estate, precious metals and natural resources. Investments can be significantly affected by events relating to these industries. Investing in REITs involves certain distinct risks in addition to those risks associated with investing in the real estate industry in general. Equity REITs may be affected by changes in the value of the underlying property owned by the REITs, while mortgage REITs may be affected by the quality of credit extended. REITs are subject to heavy cash flow dependency, default by borrowers and self-liquidation. REITs, especially mortgage REITs, are also subject to interest rate risk (i.e., as interest rates rise, the value of the REIT may decline).

The value style of investing that emphasises undervalued companies with characteristics for improved valuations, which may never improve and may actually have lower returns than other styles of investing or the overall stock market. A "quality" style of investing emphasises companies with high returns, stable earnings, and low financial leverage. This style of investing is subject to the risk that the past performance of these companies does not continue or that the returns on "quality" equity securities are less than returns on other styles of investing or the overall stock market. Investments in small-sized companies may involve greater risks than in those of larger, better known companies.

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