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Bonds Behaving Badly

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Since 2020, many investors may have noticed a new phenomenon in market movements. Bonds seem to have lost some of their "safety" status.[1] What does this mean? Two simple facts: 1) bond correlation to stocks has moved positive and 2) bonds are more volatile than we are used to. In this note, we examine the benefits of bonds as a tool to diversify equity exposure and explain why in an environment where we have some inflation suddenly the tried-and-true 60/40 portfolio may be more incomplete than it has been historically.

Post-2020: Bonds Behaving Badly

Since 2020, we have seen two key properties of bonds shift significantly. First, Figure 1 plots the rolling correlation of bonds and stocks from 2020 to present. Note the shift upwards in bond correlation to the positive side. While historically bonds have often moved in opposition to stocks, that has changed over time. Now it seems more often that when bonds are up so are stocks and when stocks are down so are bonds, something many investors learned too well in 2022. Figure 2 plots bonds volatility since 2020 against the changing level of inflation (using the Consumer Price Index or CPI as a proxy) during the same period. Note that the volatility of bonds nearly doubled in 2022 and has remained 50% higher during the period following 2022 despite the market recovery late 2023 as inflation drifted higher during this period. Many investors may ask if this is just an unusual period in history and if bonds will soon go back to their coveted "safety" status in a classic 60/40 portfolio.

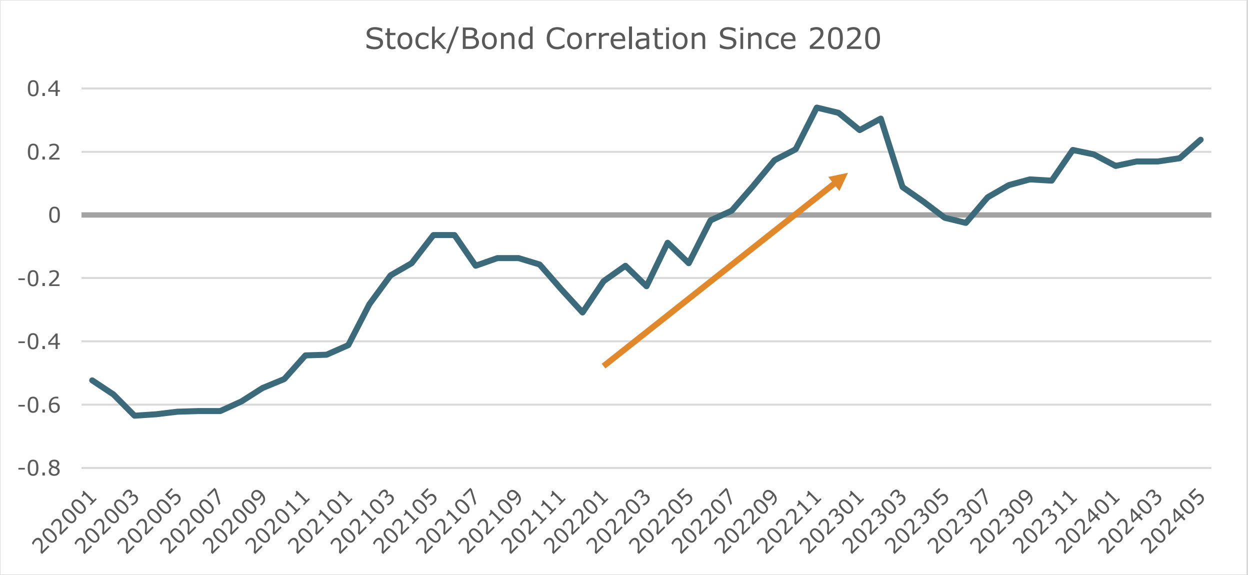

Figure 1: Rolling correlation between stocks and bonds from January 2020 to May 2024. Stocks are represented by the S&P 500 and bonds by a synthetic futures return estimate using U.S. 10-Year Note yields. Past correlations are not necessarily indicative of future correlations. Source: AlphaSimplex, Bloomberg.

[1] Flight to safety assets are defined as those assets that are perceived as safer when higher risk assets such as equity markets take losses. Common criteria for a safety asset include positive returns when high risk assets are down with lower perceived risk (often measured by volatility).

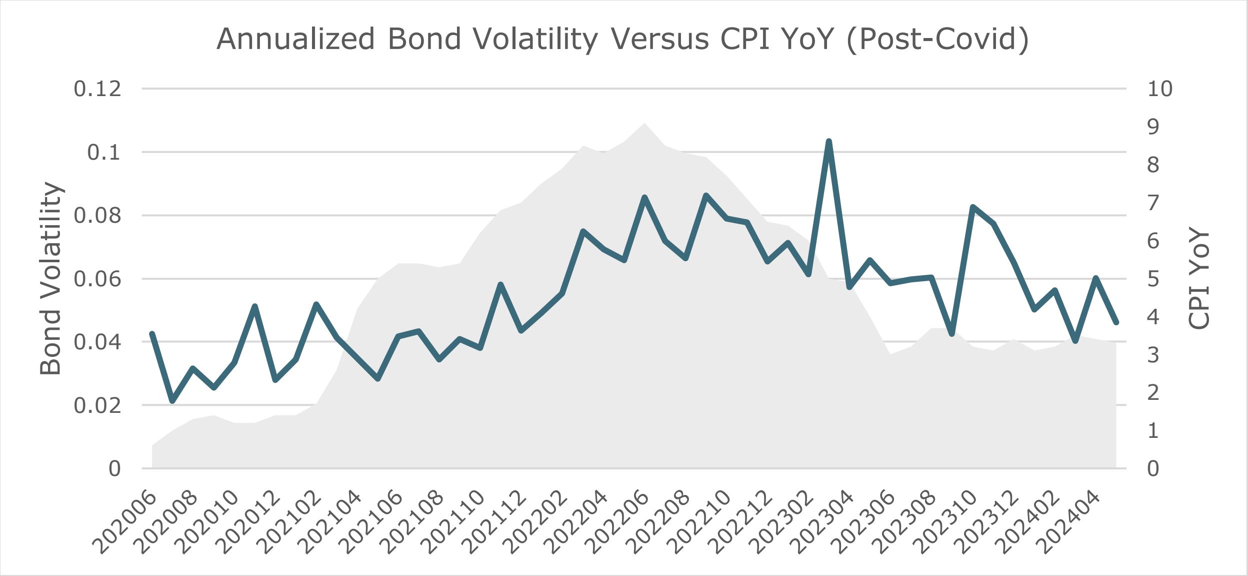

Figure 2: Bond volatility from 2020 to May 2024. Bonds are represented by a synthetic futures return estimate using U.S. 10-Year Note yields. Source: AlphaSimplex, Bloomberg.

Inflation Changes How Asset Classes Behave

Put simply, a little uncertainty around inflation has consequences for long-term cash flows. As rates increase, investing in them seems attractive, but at the same time they are more vulnerable to rate hikes and to inflation spikes. To put this into context, we consider a longer-term time series of inflation (using the CPI as a proxy) and the U.S. 10-Year Note since 1962. To discuss the "safety status" of bonds we plot the distribution of fixed income returns during equity down months on the histogram in Figure 3. The orange distribution is the resulting conditional distribution of fixed income returns during low inflationary periods and the blue distribution plots bond returns during higher inflation periods. Note the stark difference in distribution. First, bonds seem to provide less protection during high inflationary periods, as bonds provide more negative returns when equities are down. In addition, the overall spread of the distribution is wider, providing a larger range of outcomes for a total 60/40 portfolio.

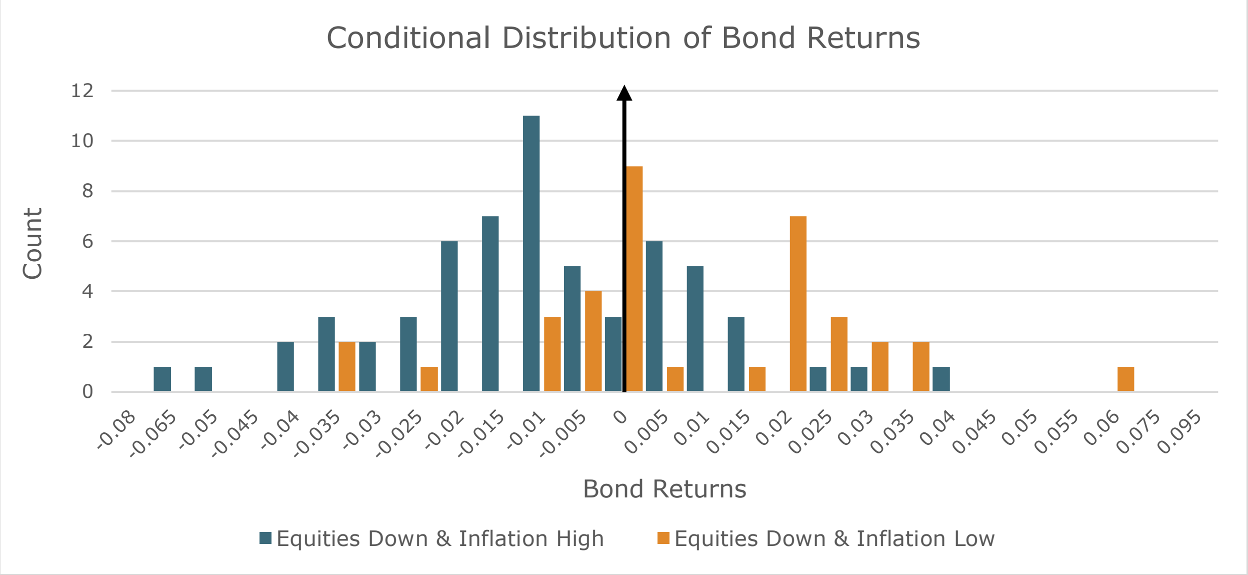

Figure 3: Conditional distribution of bond returns (using the U.S. 10-Year Note) since 1962 during periods of high and low inflation during equity down months. In this graph, high inflation is defined by the annual CPI change being greater than 4% and low inflation is less than 2%. An "equity down regime" is defined as periods where the monthly return of equities is down more than 2.5%. Bonds are represented by a synthetic futures return estimate using U.S. 10-Year Note yields. Past performance is not necessarily indicative of future results. Source: AlphaSimplex, Bloomberg.

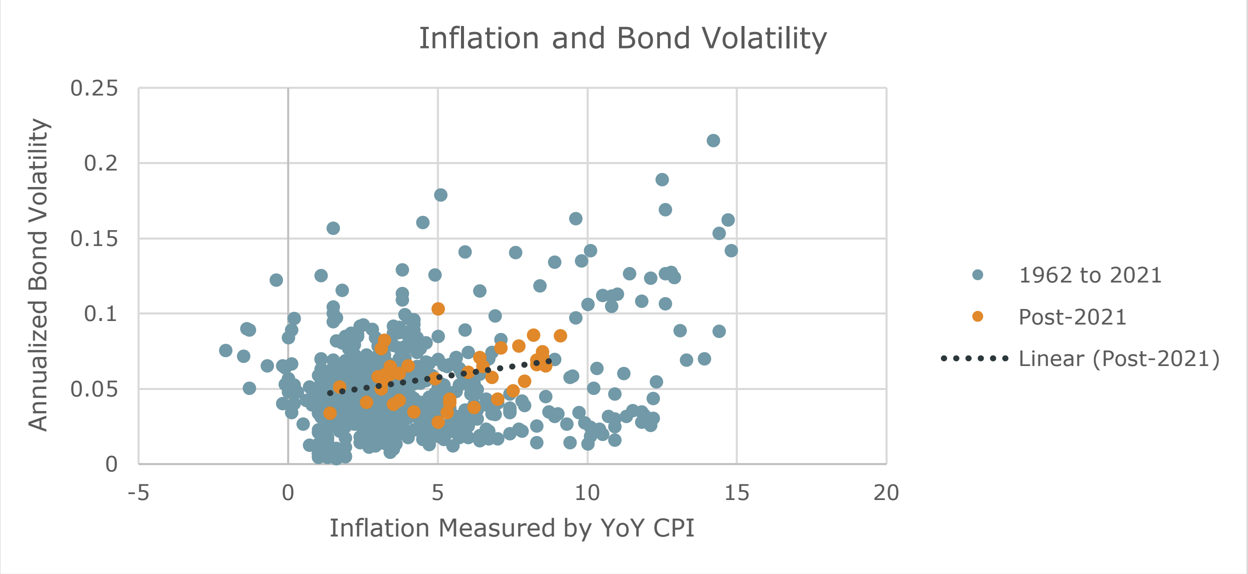

Figure 4: Scatter plot of bond volatility (using annualized realized volatility of each month's daily returns) for the U.S. 10-Year Note since 1962 versus the level of inflation using the CPI. Recent values for bond volatility versus recent CPI prints since 2021 are plotted in orange for contrast. Source: AlphaSimplex, Bloomberg.

To further consider the impact of volatility during periods of inflation, Figure 4 is a scatter plot of bond volatility during the period 1962 to present. The recent volatility levels (since 2021) are plotted in orange to demonstrate how bonds have behaved recently. From this graph we can see that bond volatility is not out of the ordinary for a period with a focus on inflation. To further demonstrate this, Figure 5 plots the average bond volatility estimated using a non-linear regression over various ranges of inflation. We see a signature pattern: as inflation increases the estimated average bond volatility also increases. This demonstrates how as we continue to be above target inflation we continue to expect elevated bond volatility going forward. It also demonstrates that higher bond volatility is not a recent fluke but a common feature of higher inflation periods.

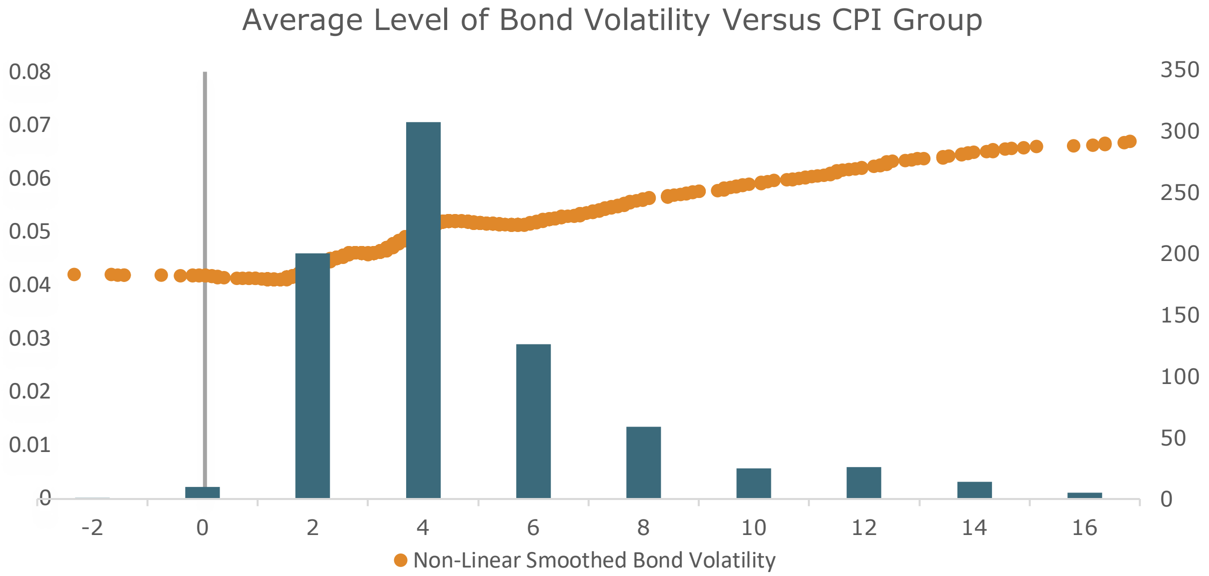

Figure 5: Non-linear estimation of bond volatility using kernel regression on the U.S. 10-Year Note volatility versus inflation using the CPI from 1962 to May 2024. Source: AlphaSimplex, Bloomberg.

The 60/40 Portfolio Lacks Diversification When Adding Inflation

Given the properties of bonds during a period with inflation, some investors have claimed the 60/40 portfolio is dead. This is a rather extreme statement. In our view, a more correct version is that bonds are more attractive when yields are higher, but they lose some of their diversification properties and they provide more volatility than we are used to. As a result, this may be a good time to consider other tools that may perform well during equity drawdowns to bring some negative correlation back into the 60/40. To illustrate this concept, we consider a few simple candidates which could add diversification. First, Figure 6 plots the conditional correlation (conditional on down periods for equity markets) with equities during high and low inflation periods for fixed income as well as other asset classes such as the currencies, gold, and a basket of commodities using the GSCI Index. From this figure, we note the pattern of negative correlation for fixed income during periods of low inflation and positive correlation during periods of high inflation. When we consider other assets such as currencies, gold, and commodities we do see more negative correlation for the dollar and gold as well as lower correlation to equities during higher inflation periods.

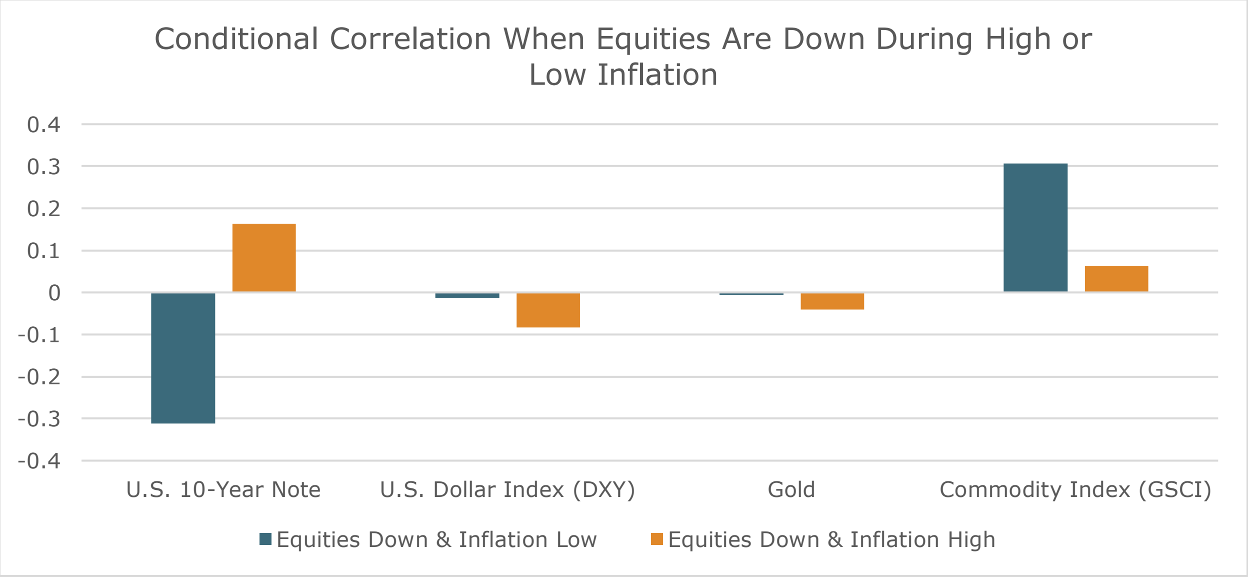

Figure 6: Conditional correlation for various assets or asset classes with equity returns during down periods for equity markets and during high and low inflation periods (using the CPI as a proxy for inflation). Past correlations are not necessarily indicative of future correlations. Source: AlphaSimplex, Bloomberg.

The Case for Alternatives

The previous section demonstrated how certain less-standard asset classes like commodities may provide more diversification even with long-only exposure. This leads us to consider more dynamic exposure to these assets or strategies with the ability to take long or short positions in other asset classes as a potential diversifier during a period of higher inflation. As a simple example, Figure 7 plots conditional correlation (conditional on down periods for equity markets) with equities for a long/short trend-following strategy that invests in fixed income, currencies, gold, and a basket of commodities during periods of high inflation. From this graph, we can see that a long/short dynamic approach provides negative correlation even for fixed income during a period of higher inflation. This simple example demonstrates the potential of dynamic and multi-asset class alternatives that may be able to provide more diversification benefits than long bond exposure during higher inflation. A common example of these strategies is Managed Futures. Managed Futures strategies provide dynamic long/short exposure to a range of asset classes across equities, fixed income, currencies, and commodities. A paper by Kaminski and Sun (2022) demonstrates how the ability to go long or short in fixed income has diversification benefits during periods with rising rates (which are often associated with periods of higher inflation).[2] Their paper discusses how fixed income tends to be more volatile and higher correlated with equity markets and highlights how short signals may perform better than long signals during periods with rising rates and steeper or flat yield curves. Considering the positive correlation for bonds with equities during down periods with high inflation, the ability to go long or short during these periods may provide some diversification.

[2] See Kaminski and Sun 2022.

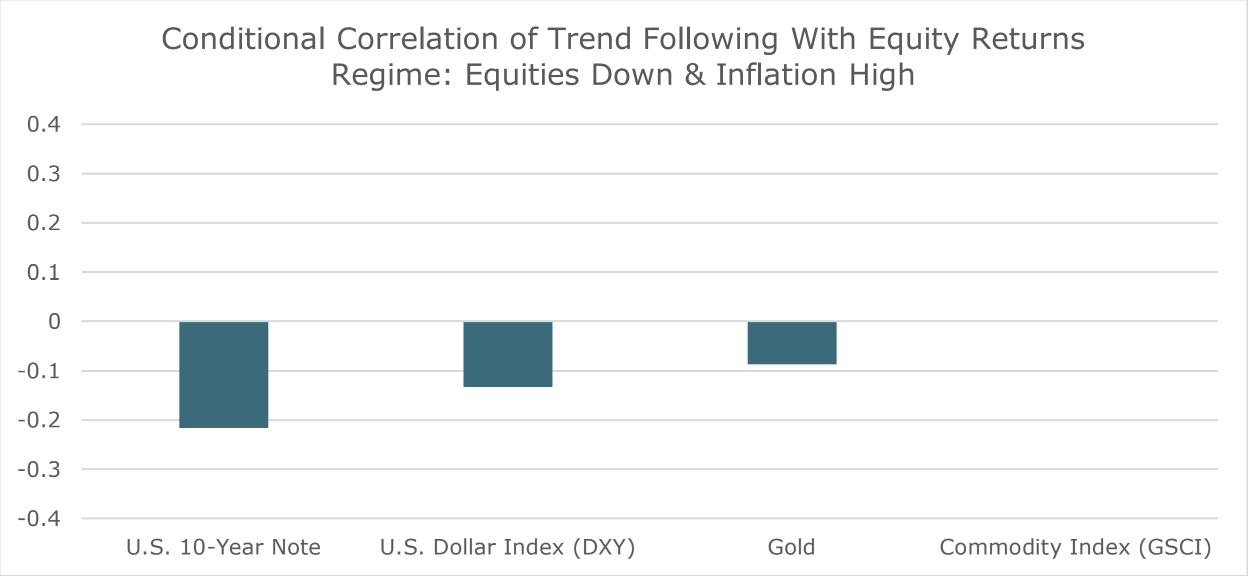

Figure 7: Conditional correlation for various assets or asset classes with equities during equity down periods when inflation is high (using the CPI as a proxy). In this case, a simple long/short trend-following signal is applied to fixed income, commodities, gold, and the dollar index. Data from 1962 to 2024. Past correlations are not necessarily indicative of future correlations. Source: AlphaSimplex, Bloomberg.

This was a key feature of 2022 for trend-following strategies. Using the recent period as an example, cumulative returns for equities (using the S&P 500 Index), bonds (using the FTSE Bond Index), and trend following (using the SG Trend Index) are plotted from 2020 to May 2024 in Figure 8. First, we can see a clear divergence in safety behavior for bonds, which is not surprising during a period of rate hikes. Note also how trend-following performance is clearly moving differently from equity returns and seems also to find opportunity during periods when equities struggled, a concept often denoted as “crisis alpha”. This is because the key trends in 2022 were short fixed income, long commodities, and long the U.S. dollar. This highlights the importance of a long/short approach during a period of higher inflation. To further demonstrate the impact of this on a hypothetical portfolio, Figure 9 plots the 60/40 during the same period versus a portfolio which is 60/20/20 with a 20% allocation to trend following as an alternative to bonds. This highlights the use of alternatives during a period where bonds seem to have “behaved badly,” exhibiting negative returns, minimal safety properties, and overall positive correlation. Although investors can get higher returns with higher rates, the increased volatility of fixed income and the vulnerability to inflation reduces their overall diversification in a combined portfolio, leading some investors to consider alternatives that may find a higher inflation environment more favorable.

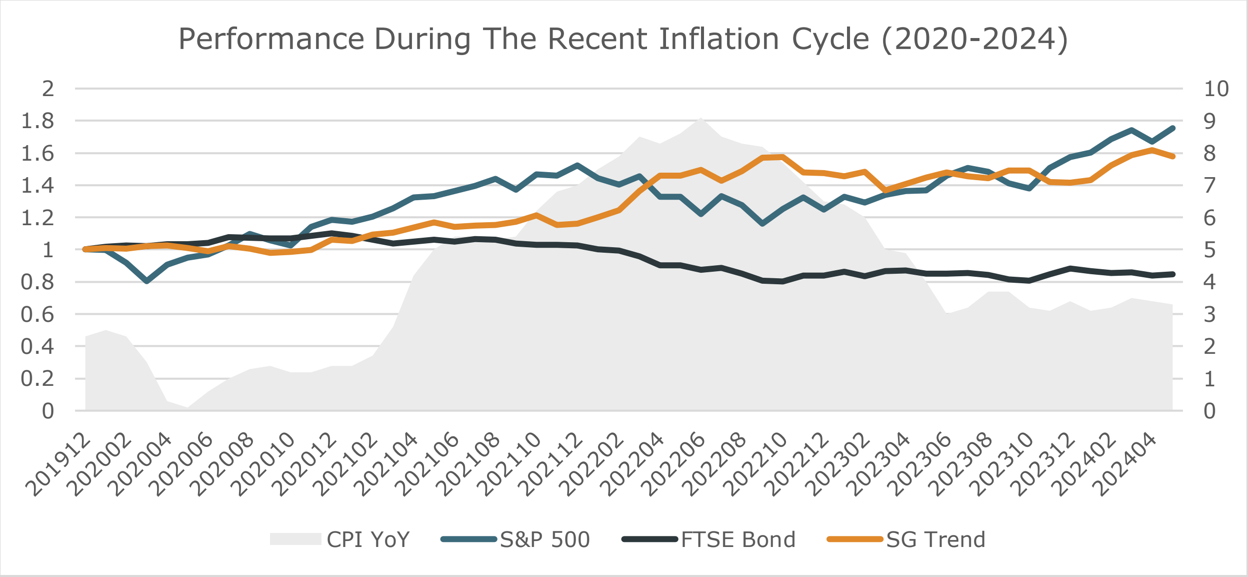

Figure 8: Cumulative performance during the recent inflation cycle for equities, bonds, and trend following from 2020 to present. It is not possible to invest directly in any index and the performance comparison above was constructed with the benefit of hindsight. Past performance is not necessarily indicative of future results. Source: Bloomberg, AlphaSimplex.

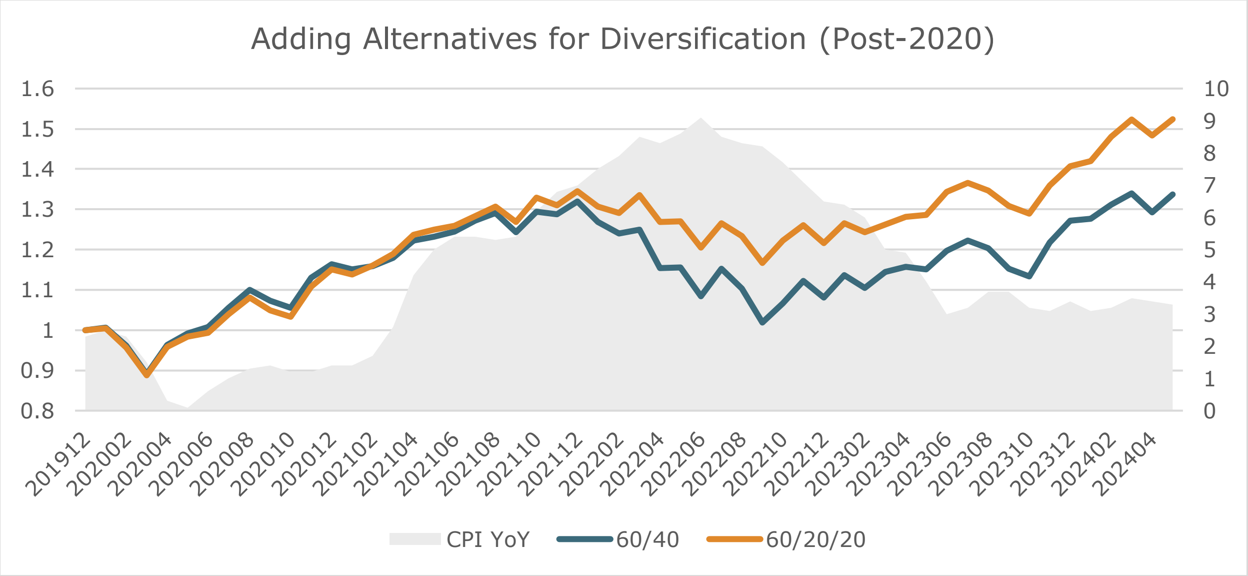

Figure 9: Cumulative performance during the recent inflationary cycle for the 60/40 portfolio (the S&P 500 and the FTSE Aggregated Bond Index) versus a 60/20/20 portfolio with 20% allocated to trend following (the SG Trend Index) and 20% allocated to bonds. Each portfolio uses monthly rebalancing from 2000 to May 2024. It is not possible to invest directly in any index and the performance comparison above was constructed with the benefit of hindsight. Past performance is not necessarily indicative of future results. Source: Bloomberg, AlphaSimplex.

Summary

Despite the excitement of higher yields in fixed income, many investors have noted that bonds seem to have been behaving badly since 2020. In technical terms, bond/stock correlation has shifted more positive and bond volatility has increased, which have reduced some of the diversification properties of the classic 60/40 portfolio. Given the backdrop of inflation, the 60/40 portfolio could benefit from other tools, such as alternative asset classes (like commodities) and alternative investment strategies (like trend following) that can capture some of the negative correlation benefits that bonds seem to lack when inflation is a predominant force in market themes.

References

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- Greyserman, Alex, and Kathryn M. Kaminski. 2014. *Trend Following with Managed Futures: The Search for Crisis Alpha*. New York: Wiley Trading.

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