The Eras Tour

One of our favourite papers is called "The Best Strategies for Inflationary Times". If it wasn't written by a competitor, it would be perfect. But today we want to talk about the opposite. We want to talk about The Worst Strategy for Inflationary Times (and how to fix it). This is particularly relevant as we have just seen an uptick in inflation and with the Fed under tremendous political pressure to cut rates, the risk of higher inflation is looming.

For simplicity, we'll stick to US markets and "Inflation" will be the US CPI Urban Consumers index. We'll consider four different *eras*: low inflation (green, below 2%), rising inflation (yellow), high inflation (red, over 4.5%), and falling inflation (blue).

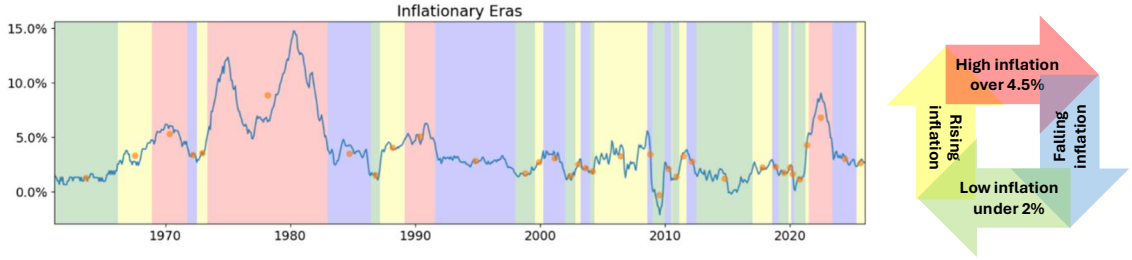

Figure 1: Annualized US CPI Urban Consumers index since 1960, with dataset divided into inflationary "eras" (era averages are the orange dots). We can go back to 1920s but results remain similar and data becomes less reliable (WW2).

Table 1 summarizes the macro picture for each of our four eras, we chose 2% and 4.5% as boundaries so that CPI spends roughly 25% of its time in both high and low regimes.

		Era Mean			
	Coverage	Inflation	10Y	Fed Funds	Term Premia
Low	26.4%	2.2%	3.4%	2.1%	1.4%
Rising	21.6%	3.9%	5.0%	4.0%	1.0%
High	25.5%	7.3%	8.0%	8.1%	-0.0%
Falling	26.4%	2.4%	6.4%	4.6%	1.5%

*Table 1: Average inflation, 10Y UST rates, Fed Fund rates and Term Premium (10Y less Fed Funds) divided by era. Inflation is **persistent**, it drops gradually to fall from 4.5% to 2% but rises faster over a shorter time back from 2% to 4.5%.*

Inflation is important for two reasons. First, if you're investing for the long-term it's important to beat inflation, real returns are what really count. Second, investments and strategies will behave differently in different eras, as will the relationship between them. Specifically, although inflation *levels* during "falling" and "rising" eras are similar, we see material differences between the two. E.g.

real borrowing rates (Fed Funds less inflation) are highest during falling inflation regimes, as the Fed struggles to lower inflation.

The All-Weather Growth Portfolio

Long equities are the backbone of any portfolio, and Table 2 shows why. Equities are a good performer over all inflationary eras, making them the ideal all-weather growth portfolio: "All-weather" because they perform above CPI in all eras, and "Growth" because equities respond to economic conditions: while earning very little over CPI during high inflation eras, as conditions improve, equity real returns improve (up to 15%) during the three remaining eras.

		Era Mean				Correlation	Equity				Bond			
	Coverage	Inflation	10Y	Fed Funds	Term Premia	Bond-Equity	Nominal Return	Real Return	Vol	Sharpe	Nominal Return	Real Return	Vol	Sharpe
Low	26.4%	2.2%	3.4%	2.1%	1.4%	-13.9%	16.7%	14.5%	15.4%	1.0	4.3%	2.1%	7.3%	0.3
Rising	21.6%	3.9%	5.0%	4.0%	1.0%	-23.2%	9.0%	5.1%	12.9%	0.4	3.9%	-0.0%	6.5%	-0.0
High	25.5%	7.3%	8.0%	8.1%	-0.0%	39.3%	7.6%	0.4%	16.8%	-0.0	5.1%	-2.2%	8.4%	-0.4
Falling	26.4%	2.4%	6.4%	4.6%	1.5%	6.5%	11.3%	8.8%	15.1%	0.4	11.0%	8.6%	8.8%	0.7

Table 2: Bond (constant maturity US 10y) and Equity (S&P total) returns by era. Real returns are nominal less inflation. Sharpe is nominal less fed-funds funding, divided by vol.

Bonds: The Flawed All-Weather Defensive Portfolio

The price you pay as an allocator for long-term growth is a risk of sharp equity drawdowns.

Enter bonds. The idea behind the familiar 60/40 portfolio is that bonds have positive returns while negatively correlated to equities, benefiting from a flight to safety when things go wrong. It's a good idea, but it's flawed and skewed by a recency bias.

In recent low-inflation eras, we saw negative correlation between bonds and equities with bonds providing excellent returns.

But as inflation rises we see historically bonds failing to perform. Not only that, but correlation also spikes. By the time you get into high inflation eras bonds are not only a drag on returns, but they are almost 40% correlated to equities. You lose both performance *and* diversification.

We saw this in 2021-2023, when correlations broke down during the inflationary period that came after the twin shocks of Covid and the war in Ukraine. None other than Bank of America declared the "end of the 60/40" portfolio as bonds and equities fell together.

It shouldn't come as a surprise that inflation is bad for bonds. With higher inflation comes interest rate hikes, and both rising yields and less term-premia will hurt your bonds.

What About TIPS?

The natural alternative to nominal bonds is inflation linked bonds: TIPS. Unfortunately, what seems good on paper does not work in practice. There are good reasons why the TIPS market is only $2trn compared to more than a $30trn nominal US treasuries market. TIPS principal is indexed to CPI making it a long-term hedge if held to maturity. But it also extends the bond's *duration:* its sensitivity

to nominal yield changes. When inflation rises, we generally want to shorten duration while TIPS do the opposite!

So when yields begin to rise along with inflation, this extended duration hurts TIPS *more* than the benefit they get from rising inflation, paradoxically causing TIPS to fall in value.

Further, the lower coupons on TIPS are just not enough to compensate investors, making TIPS a negative-carry instrument during periods of lower inflation.

Finally, TIPS correlations to equities are still positive in eras of high inflation, making it an ineffective diversifier.

See this blog post (TIPSplaining a lousy inflation hedge) from FT's Alphaville for a more detailed discussion.

Commodities

If bonds suffer during periods of rising or high inflation, is there an asset class that benefits from it? How about commodities? Table 3 extends Table 2 to include long-only commodities.

		Era Mean		Correlation		Equity			Bond			Commodity Long Only		
	Coverage	Inflation	Bond-Equity	Comdty-Bond	Comdty-Equity	Nominal Return	Real Return	Sharpe	Nominal Return	Real Return	Sharpe	Nominal Return	Real Return	Sharpe
Low	26.4%	2.2%	-13.9%	-11.0%	33.5%	16.7%	14.5%	1.0	4.3%	2.1%	0.3	3.7%	1.5%	0.1
Rising	21.6%	3.9%	-23.2%	-8.2%	-13.3%	9.0%	5.1%	0.4	3.9%	-0.0%	-0.0	9.3%	5.4%	0.4
High	25.5%	7.3%	39.3%	-13.9%	-3.5%	7.6%	0.4%	-0.0	5.1%	-2.2%	-0.4	10.7%	3.4%	0.1
Falling	26.4%	2.4%	6.5%	-23.5%	40.2%	11.3%	8.8%	0.4	11.0%	8.6%	0.7	-5.8%	-8.2%	-0.8

Table 3: Era-wise summary, including commodity (BCOM index) long-only performance.

Commodities is the asset class most closely linked to inflation. Indeed, CPI itself is the price change of goods (i.e. commodities!) and services.

Unsurprisingly, commodities look great in rising and high inflation. Conversely, performance is poor in low inflation and negative in falling inflation. Commodity-equity correlation is also the opposite to bond-equity correlation in high and low inflation eras.

Long commodities are a mechanical inflation hedge. You are literally just owning the thing that's going up in price, so it's not surprising that it works. But in low or falling inflation, you're owning a commodity that's not rising very much, while paying negative carry.

Perhaps there is a better way to combine bonds and commodities together to create an all-weather complement to equities?

Persistent Inflation

Remember we mentioned briefly how persistent inflation is? In Figure 2 below we show just how persistent inflation is, by forecasting inflation using last month's inflation, or a 6-month average. Nothing fancy is needed because inflation is so persistent: if prices go up this month, they are likely to go up again next month.

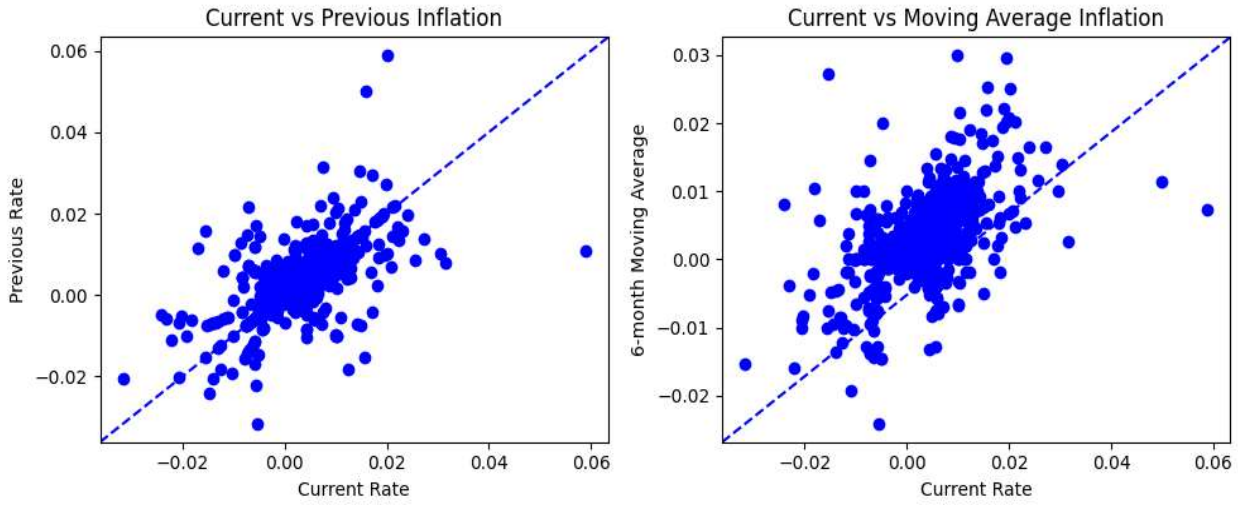

Figure 2: Actual (y-axis) vs Forecast (x-axis) inflation using previous month inflation (LHS) or previous 6m average (RHS)

Does this lend itself to an obvious trading strategy? If you thought 'that sounds like trend' you'd be right.

Commodity Trend

It is not surprising even our competitors recommend Commodity Trend (CT) during high inflation. We take advantage of the fact that inflation is persistent and buy commodities whose prices keep going up. It is easy to understand why Commodity Trend is the Best Strategy for Inflationary Times.

		Era Mean		Correlation			Equity			Bond			Commodity Trend		
	Coverage	Inflation	Bond-Equity	CT-Bond	CT-Equity	Nominal Return	Real Return	Sharpe	Nominal Return	Real Return	Sharpe	Nominal Return	Real Return	Sharpe
Low	26.4%	2.2%	-13.9%	1.6%	2.9%	16.7%	14.5%	1.0	4.3%	2.1%	0.3	4.8%	2.6%	0.2
Rising	21.6%	3.9%	-23.2%	3.1%	-15.8%	9.0%	5.1%	0.4	3.9%	-0.0%	-0.0	13.2%	9.3%	0.6
High	25.5%	7.3%	39.3%	-11.0%	3.6%	7.6%	0.4%	-0.0	5.1%	-2.2%	-0.4	20.3%	13.0%	0.7
Falling	26.4%	2.4%	6.5%	12.3%	2.7%	11.3%	8.8%	0.4	11.0%	8.6%	0.7	2.7%	0.3%	-0.2

Table 4: Commodity trend returns constructed as a 15%-vol, medium term trend program on a subset of BCOM markets (inc. Ags, Energy and Metals) since 1960.

Commodity Trend also has small-to-negative correlations to both equities and bonds, and unlike long only commodity, we can short a market if prices fall so even during low inflation, it is not a huge drag on performance.

The All-Weather Defensive Portfolio

Let's use Commodity Trend to overcome the shortcomings of bonds.

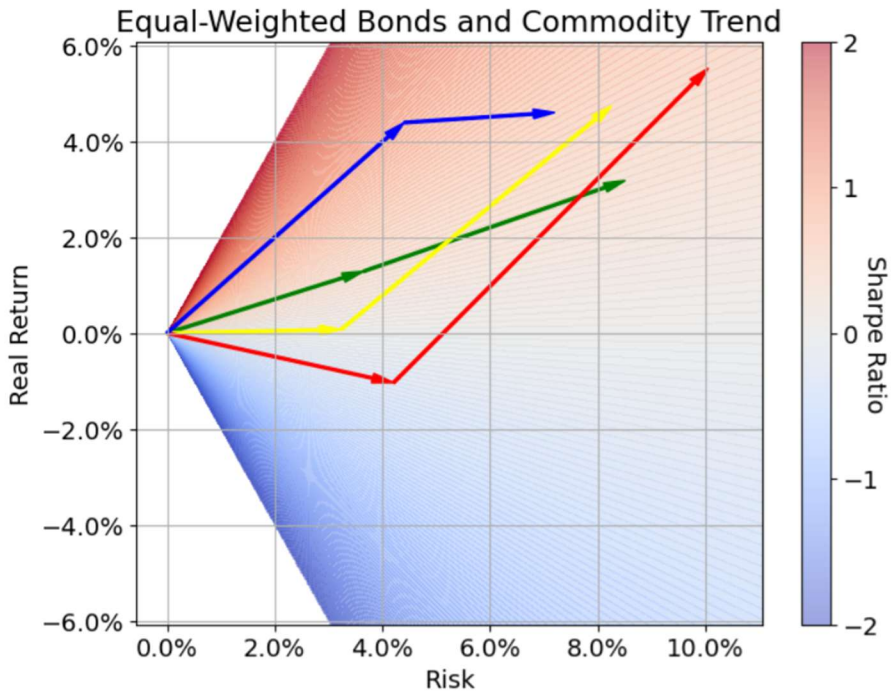

Figure 3: Risk vs Real Returns for 50/50 B/CT. Arrows (different eras) are incremental: the first is bond contribution to B/CT and the second is the full B/CT portfolio. Most importantly, B/CT yields approx CPI+4% in all weathers..

Figure 3 shows the risk and real returns characteristics of a combined 50/50 Bond/Commodity Trend (B/CT) portfolio.

As expected, bonds are a drag on the real returns in rising and high inflation. It's in these two regimes where commodity trend excels and gets our defensive portfolio into positive territory – even excess of inflation – across all four eras.

The overall portfolio is what a defensive all-weather defensive portfolio *should* be: B/CT = CPI+4%.

The Diversified All-Weather Portfolio

You will be pleased to hear that our Defensive (B/CT = CPI+4%) and Growth (E = CPI+0% to 15%) all weather portfolios have low correlations, across all inflationary eras, making it easy to allocate to the two portfolios, depending on your basic CMA about future equity growth in the coming year.

As an example, we allocated conservatively 33% to Growth (equity), giving us an equally weighted portfolio.

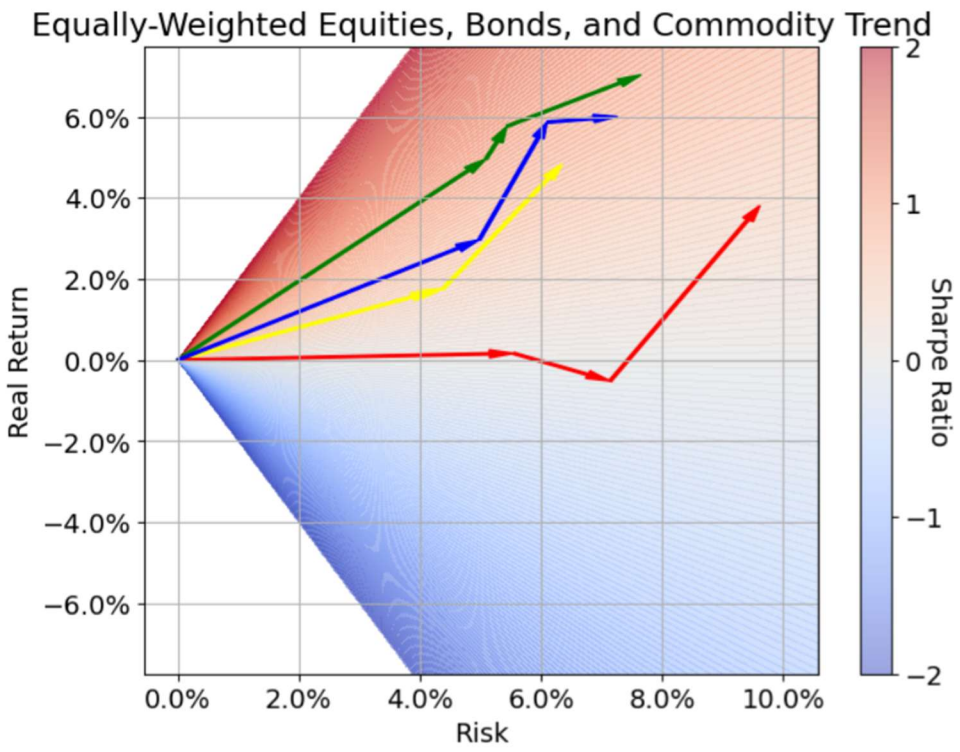

Figure 4: Risk vs Real Return of E/B/CT. Arrows are incremental: E, then E/B and then E/B/CT. We still see CPI+4% in all eras with a growth upside. E/B/CT is diversified and vol is ~8% in all weathers. Notice E/B negative returns in high inflation..

Such a holistic approach (dare we say Total Portfolio Approach…?) makes it very easy for you to allocate: growth% to equity and 1-growth% to the defensive B/CT.

It also makes it easy for you to communicate to your investment committee the choices you have made, articulating the trade-off between growth and defense, between greed and fear. In the current environment, where real borrowing rates are negative and inflation is back on the rise, this can be an invaluable tool to improve & clarify your overall portfolio construction.

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