

OUT OF OUR MINDS

Does the Equity Market Know Something the Fixed Income Market Doesn't?

by Edmund Bellord • April 12, 2022

When it comes to providing a mirror of where inflation is really headed, stocks may be the new bonds.

Despite recent volatility the bond market has yet to lose its composure over the multi-decade high in inflation. In the US, ten-year Treasury yields have risen, but only to levels they reached prior to the pandemic, and, while ten-year *real* yields have been a little perkier, they are still below zero. As a result, the longer-term inflation expectations baked into today's bond prices remain bunched up around 2% despite headline inflation running at over three times that rate. Short-term yields anticipate a series of hikes in the federal funds rate, the central bank's standard response to persistent inflation, but even forward curves expect short-term yields to top out at only around 2.5%, within spitting distance of where they peaked back in 2018 when inflation was slumbering at 2%.

What Is the Bond Market Telling Us?

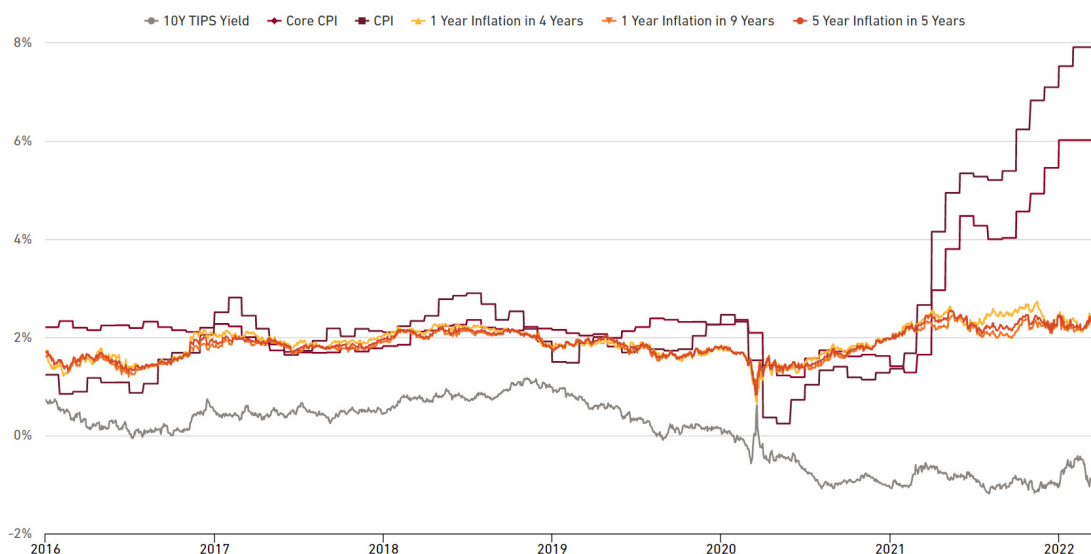
What are we to make of such an acquiescent yield curve in the face of the highest inflation in a generation? Are investors so convinced of central banks' inflation-fighting credibility that they are willing to forego any compensation for the risk that things might not turn out exactly as planned? Or have successive efforts by central banks to prop up asset prices at the first sign of trouble by generously

spraying markets with liquidity scrubbed away any vestigial memories of inflation and left investors in a state of learned passivity? Or perhaps there's a simpler explanation: the information contained in bond prices must be taken with a large pinch of salt.

The increased adoption of risk-parity strategies has cemented the role of bonds as foremost an insurance asset. If instead of demanding compensation for bearing inflation risk, investors are willing to *pay* a premium to protect their portfolios, inflation expectations derived from bond prices will be understated.

There are plenty of reasons for not taking bond prices at face value, and they bear repeating, if only to remind ourselves of the profound distortions bedeviling sovereign yield curves. The biggest culprits are the quantitative easing programs undertaken by central banks following the Global Financial Crisis (and extended or revived during the pandemic) to push down long-term interest rates and thereby spur economic growth. Despite plans to wind them down, these asset-purchasing programs continue to Hoover up much of the sovereign bond supply in the US, the eurozone, and Japan. The rate-dampening effects of these programs are augmented by the ongoing bond purchases by other

CPI vs. Forward Breakeven Inflation Jan. 01 2016 to Apr. 05 2022



Source: Federal Reserve and St. Louis Federal Reserve

central banks, notably in Asia, whose recurrent need to prevent large current account surpluses from sending their currencies spiraling higher compels them to keep adding to their towering foreign reserves.

But while central banks, along with other non-profit-maximizing participants, have always been a feature of bond markets, what's new today is the rise of a class of investor for whom default-free government bonds are a hedge first and a return-seeking investment a distant second. The increased adoption of risk-parity strategies, along with various permutations that fall under the umbrella of volatility-targeting strategies, has cemented the role of bonds as foremost an insurance asset. In these strategies, as equity market volatility rises or falls, exposure to bonds is dialed up or down to equalize the contribution to total portfolio volatility coming from each asset class. The inherent assumption is that bonds will be a hedge when the rest of the portfolio heads south. And that's a problem because the inflation expectations that are backed out from bond prices assume that investors demand a reward for bearing inflation risk. But if instead of demanding compensation for bearing inflation risk, investors are willing to *pay* a premium to protect their

portfolios, inflation expectations derived from bond prices will be understated.

What this means from a practical perspective is that bond prices are likely to be far less reactive to nascent inflation concerns than in the past, and equity prices may be the better guide for those concerned about what's brewing with inflation. Moreover, today's strained equity valuations magnify the markets' sensitivity to prospective increases in inflation. Ominously, high valuations not only make equities more sensitive but also more vulnerable, as we shall see.

Equities and Inflation

Whenever inflation and equities are mentioned in the same breath there is always someone who will reflexively insist that, because equities are a claim on real assets, holders can safely ignore inflation. There is a kernel of truth to this. Equities *are* a claim on real assets and so over the very long term should be more resilient than, say, nominal bonds, but that doesn't mean inflation can be ignored. Far from it. Because inflation has knock-on effects to cash flows and discount rates, the impact of higher inflation on equity valuations can be dramatic. The hit to cash-flow expectations comes from the combined effects

of a squeeze on company profits from rising input costs and the demand destruction that typically follows the policy response—an increase in tax levels or interest rates—needed to bring inflation back under control. Moreover, because monetary instability also strikes at the heart of the economic compact between labor and capital, it can have a dramatic effect on equity discount rates beyond its mechanical effect on borrowing costs.

Assuming companies can pass on their costs one-to-one with inflation, they should be able to pay higher dividends and their share prices should go up. What this simple story leaves out, of course, is the colossal bun fight that inevitably breaks out as everyone flails around trying to dodge the inflation hit to profits, wages, and pocketbooks.

A simple model for equity returns can help to elucidate the mechanics. One workhorse model for equity returns is the Gordon Growth model, a variant of the dividend discount model that assumes the current dividend D grows at some constant rate g in perpetuity and that investors discount those future expected cashflows at a fixed rate r . The price P for such an asset is the present value of the entire stream of future cash flows, which can be expressed as follows:

$$P = \frac{D}{r - g}$$

What's clear from this simplified model is that, assuming companies can pass on ballooning input costs by raising prices for their goods one-to-one with inflation, the resulting increase in nominal dividends will be matched by a corresponding increase in nominal share prices. If that were the only thing going on, then inflation could indeed be safely ignored. What this simple story leaves out, of course, is the colossal bun fight that inevitably breaks out as everyone flails around trying to dodge the inflation hit to profits, wages, and pocketbooks.

The precise contours of the conflict depend on the source of the inflation shock and the relative bargaining power of the various stakeholders. But the broad outlines tend to follow the same pattern, with a shock to living standards sparking a demand for higher wages that gets passed on through higher prices as businesses try and defend their margins. Because each step is contentious, none of it unfolds smoothly, which lowers productivity and interferes with resource allocation and ultimately is manifested in slower earnings growth.

Eventually, a central coordinator like a central bank or fiscal authority steps in to try and break this dynamic. The standard cure involves them reining in economic activity with some combination of higher interest rates or increased taxation, which does eventually bring the inflationary cycle to a shuddering halt but at the cost of lower profits and wages. These interventions typically produce additional unintended consequences—see the miners' strike in Great Britain during Margaret Thatcher's early years—which further increase frictions.

Given that backdrop, it's hardly surprising that consistently rising prices tend to also push up the required rate of return for risky assets. This reflects the real sense that elevated inflation embodies the unraveling of the social contract in the economic sphere. And that's because inflation is not so much a rise in the price of goods as it is a decline in the value of money. This erosion in the unit of account ripples through balance sheets, blunting price signals, and makes it harder for businesses and households to plan for the future. The longer inflation persists, the more debilitating the harm.

High Valuations Increase Equity Market Sensitivity

The Gordon Growth model also has a role to play in explaining why the confluence of elevated valuations and inflation is so toxic. To understand how that works, we need to introduce another concept known as modified duration. The notion of modified duration is central to bond analysis, but it's rarely applied in the context of equities. And that's a shame because

equity market duration has a lot to tell us about the stock market's current sensitivity to inflation.

Duration is the average maturity of the expected future cash flows for any security. Purely speculative assets that have no expected cash flows, such as gold or Bitcoin, have infinite duration. The duration for a zero-coupon bond with a single known cash flow at expiry is simply the number of years to maturity. If you divide the duration of an asset by its discount rate, you have a measure of its sensitivity to changes in that discount rate, which is called *modified* duration. For bonds, modified duration is the sensitivity of its price to changes in its yield to maturity, or, said otherwise, the percent change in price for a given percent change in yield. For equities, modified duration tells you how much of a share price change you should anticipate for a given small change in the discount rate, r .

Although in the case of equities the cash flows are uncertain, we can still use the Gordon Growth model to approximate a measure of modified duration for the broad market. I'll leave the tedious math for the footnote¹ but suffice to say that a few manipulations reveal that the modified duration of the equity market is simply the inverse of the market's dividend yield. With a dividend yield of 1.43%, the S&P 500 is currently sporting a modified duration of around 70 years ($100/1.43 = \sim 70$).

Over the past 20 years, already a period of elevated valuations relative to long-term history, the average modified duration for the S&P 500 has been 50 years. A current modified duration of 70 implies a 40% increase over the historical average in the sensitivity of share prices to small changes in the discount rate. In practice, at a modified duration of 50 years, a 50-bps increase in the discount rate would translate to roughly a 20% decline in prices. This decline is somewhat less than the 25% we would expect from modified duration alone ($.05\% \times -50 = -25\%$) because, for larger changes in the discount rate, we need to also account for a bit of arcana known as convexity. Even so, today, with

a modified duration of 70, the effect of a 50 bps increase in the discount rate at a modified duration of 70 years is a 27% drop.

It's quite possible that the recent ruckus in the market for growth stocks—those securities with cash flows furthest out into the future and therefore with an even more extended duration—is exactly what we'd expect as the first tremors in the discount rate reverberate through the amplifier of high valuations.

It's quite possible that the recent ruckus in the market for growth stocks—those securities with cash flows furthest out into the future and therefore with an even more extended duration—is exactly what we'd expect as the first tremors in the discount rate reverberate through the amplifier of high valuations. Meanwhile, the resilience of the broader market might indicate that so far, at the aggregate level at least, this rise in the discount rate has been partly offset by rude economic health and no indications of an unravelling of the social fabric caused by inflation. If only such an assessment wasn't directly at odds with the recent inversion of the US yield curve pregnant with recessionary portents. Let us hope that the bond market's distortions that scramble its inflation signaling are also adding to its inutility as a predictor of economic slowdowns.

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Endnotes

¹By taking the first derivative of the Gordon Growth model with respect for r gives us $\frac{\Delta P}{dr} = \frac{D}{(r-g)^2}$.

Then simplifying and dividing each side by $\frac{1}{P}$ gives us an expression for duration, $\frac{\frac{\Delta P}{P}}{dr} = \frac{1}{r-g}$,

that can also be expressed as $\frac{P}{D}$.

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